

ESSENTIALS
OF
ARITHMETIC
—
STONE

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THE
ESSENTIALS
—OF—
ARITHMETIC,
—CONSISTING OF—

One Thousand Graded Examples.

Prepared and Arranged by
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THE BANCROFT COMPANY.

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INTRODUCTION

This little volume is an attempt to simplify and make more directly practical the teachings of arithmetic.

The graded examples composing the body of the book are already in use in the public schools of San Francisco, as an aid to the teachers of the various grades. The favor with which they have been received, and the testimony of so many teachers as to their usefulness for this purpose, have led to their publication in a compact and convenient form. It is well known to all thoughtful teachers, that a great deal of useless work is done in teaching arithmetic, and that, in spite of the extended attention given to that study in our public schools, it is too frequently the case, that boys leaving school for a business life are found to be deficient in a ready and accurate use of figures. Too large a portion of the text-book is occupied with padding in the way of impractical examples and extended analyses of operations such as rarely occur in active life.

This is by no means simply a book for teachers. With no other manual than this in the hands of the pupils, and with a judicious amount of suggestion from the teachers, I contend that the waste of time and labor in this branch of instruction, as regard both teacher and pupil, would be reduced

to a minimum, and that the results would be far more satisfactory than are now generally accomplished

It has seemed to me, when reflecting upon this subject, that during the early years of school life all explanations should come from the living teacher, that the pupil should have before him only the work to be done, and that, instead of every step being fully explained to him, as much as possible should be left to the pupil's own good sense and ingenuity, which should be stimulated and guided by the well-chosen and judicious suggestions of the teacher. With this view, during the past year, I prepared for the use of the public schools which it has been my duty to inspect, sets of one hundred practical examples each, for the seven grades above the Eighth, endeavoring to give type examples within the comprehension of the pupil, and leaving all necessary drill and explanation to the judgment of the teacher. A reform is certainly demanded in the instruction in numbers as imperatively as in the teaching of grammar. It is impossible for this fact to be more forcibly presented than in the following extracts from John Swett's "Methods of Teaching," the best and most practical manual for teachers which has yet appeared.

On page 103, under the head of THINGS ESSENTIAL, Mr. Swett remarks: "*Pupils must be trained in arithmetic, to work, accurately and readily, examples in the 'four rules' ; to work business examples in common and decimal fractions ; to reckon simple interest ; and to write bills, receipts, and promissory notes.*"

"In most country schools the pupils throw away a great deal of time in 'going through,' term after term, bulky text books on arithmetic, filled to repletion with school-masters' puzzles about things unknown in real life, and crammed with technical 'rules,' which are learned only to be forgotten.

Concentrate your drill upon the four rules, fractions, the tables, and interest, and thus give your pupils the mental training which will enable them to do a few essential things skillfully, accurately, and readily. None of your pupils need to study such schoolmasterisms as alligation, duodecimals, circulating decimals, permutation, single and double position; and few, except the big boys who have nothing else to do, need waste time upon compound proportion, reduction ascending and descending, true discount, bonds, exchange, insurance, equation of payment, partnership, arithmetical progression, geometrical progression, custom-house business, annuities, etc. Omit these, and you may find time to give short lessons in the elements of natural science, and to open the eyes of your pupils to the wonders of the world around them. It is true that many country school-masters still contend that the reasoning faculties of a pupil cannot be properly disciplined, unless he devotes half his school days to abstruse logical analysis, as they choose to call it, of useless problems worse than Chinese puzzles, involving only blind adherence to rule, or still blinder imitation; but the real truth is, that mental discipline in the study of arithmetic is not one whit more valuable than is hard thinking upon other school studies."

In Chapter IV, headed "CONDENSED DIRECTIONS FOR TEACHING ARITHMETIC," I find the following, which is worthy the careful consideration of every teacher: "Children under ten or twelve years of age should be limited mainly to operations in addition, subtraction, multiplication and division, in order to secure accuracy and readiness. 'In certain respects,' says Bain, 'this knowledge (empirical) is highly scientific; the terms are clearly conceived, the directions precisely followed, and the result accurately arrived at. There is nothing slip-

shod, no vagueness to be corrected, nothing to be unlearned. The theory, rationale, or demonstrative connection of the steps is alone wanting—and that is a later acquirement.’’ [To those teachers who believe that every step must always be carefully explained to and understood by their pupils, I commend the careful consideration of the above.]

“Let beginners in the four rules, fractions and table-work learn first the mechanical process of doing things. Work an example on the black-board before their eyes, and let them learn by imitation. Of course, in some cases, you should make the reason plain by suitable explanations, *but do not require your pupils to explain at this stage.* Keep your long-drawn-out demonstrations and your normal school ‘analyses’ for pupils nearer your own age. For some parts of arithmetical work there are no patent devices for escaping from downright memory and hand practice-work. The learning of the multiplication table, however, introduced by object-lessons, must mainly be an affair of memory, and the result of long-continued repetition, even when pupils have reached the proper age. Hence the necessity of giving pupils a much greater number of drill exercises in the four rules than it is possible to put into a small text-book or arithmetic. Do not try to make pupils understand demonstrations and analyses which are beyond the comprehension of young children, though easily perceived when they are older. There are some things in arithmetic that must be learned practically, as an art, before the scientific principles are understood. Thomas Hill, ex-President of Harvard University, very truly says: ‘The great reform needed in our public schools is to postpone reasoning to the higher grammar classes and to the high schools, and give attention to the power of perception and imagination and the acquisition of

skill. It is worse than useless for a child to explain his arithmetic until he has acquired rapidity and certainty in ciphering. If a text-book is used by the pupils, omit complicated problems and all questions involving very large numbers."

On this point Superintendent Stone, of Springfield, Mass., remarks: "Improbable examples, such as never occur in business, and fractional expressions of large and unusual terms, which require much time and wear of brain to handle, are not profitable work for children. It is said that, in ordinary business computations, four-fifths of all the fractions used, aside from decimals, are halves, fourths, eighths, thirds and sixths. If, therefore, such examples only are given as will admit of rapid solutions, time will be gained for practice greater in amount and variety."

Superintendent Eliot, of Boston, remarks: "Instead of some conception of the simpler laws of mathematics, our scholars are misled with rules or bewildered with puzzles, until they know neither what they are trying to learn nor what powers they are trying to use." Mr. Swett continues: "Use the blackboard yourself for the purpose of giving explanations or models. Drill your pupils at the blackboards, sending up one-half the class while the other half is engaged in slate work. Give both divisions the same examples, and insist on good figures and neat work in addition to accuracy. *Give frequent drill exercises in addition*—the operation in which more mistakes are made than in any other. Train pupils to consider *accuracy* as vastly more important than rapidity. Train pupils to exchange slates and correct one another's work. Carry on mental and written arithmetic together. Introduce principles by mental operations with small numbers; then, having fixed the principle, apply the rule to larger numbers on the slate or the blackboard.

“An excellent class drill in mental arithmetic is to take a five minute exercise as follows: Make up a set of ten practical business questions, read a question, and allow from a quarter to a half minute for the mental solution, and require the *answers* to be written on slates or paper; so continue with the set. Then let pupils exchange slates, and credit the correct answers as given by the teacher. Aside from its practical business training, the disciplinary value of this exercise is *that it trains to a habit of fixed attention*.

“The essential parts of arithmetic, which all pupils should understand, are the four rules, common and decimal fractions, the tables of money, weights and measures, and their application, percentage, and the principles of proportion.

“All the rest of the text-book may be omitted, without much loss, by all except High School pupils. * * * If you are allowed any discretion in the matter, cut out half the text-book; but make up and give to your class numberless sets of simple, practical business questions, both mental and written. * * * The explanations, if given at all, should be given orally by the teacher; they do not belong to a pupil's book, unless it is assumed that the teacher knows nothing whatever about the subject.”

This chapter, so full of sensible and timely suggestions, closes with a quotation from Thomas Hill: “Life is not long enough to spend so large a proportion of it on arithmetic as is spent in the modern system of teaching it; and arithmetic is too valuable an *art* to have our children neglect to acquire facility in it, while they are being stupefied and disgusted with premature attempts to understand it as a science.”

From the Report of the Superintendent of Schools in Springfield, for 1882, I take the follow-

ing: "As to the question whether arithmetical work, as pursued in the schools, is well adapted to prepare one for business, the opinion is not generally favorable. While all admit that such work may have some value as mental discipline, it is contended that much of it is not practical, and is often more difficult than anything that will be met with in business; and that this difficult work taxes the pupils' strength and time to such an extent that they do not have sufficient opportunity for that practice in ordinary arithmetical computation that is necessary for ready and accurate work. It is said that while they can untie hard mathematical knots, they are not expert in adding a long column of figures on the ledger, or on an ordinary bill of goods with a considerable number of items."

These points seem so well taken, that I have not been able to withhold from them my hearty assent.

Frank A. Fitzpatrick, Superintendent of the Schools of Leavenworth, and one of the most thoughtful, practical and progressive school officers of this country, says, in his report of 1881: "Pay special attention to the *how*, and very little to the *why* in the lower grades. *Make each lesson a review of preceding work.* Arrange a series of examples covering principles heretofore learned, and give them to the class until the pupils become self-reliant. Five examples, worked in ten minutes, will secure better results than two examples worked in the same time. In fractions, given for class work, use such fractions as halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths: never give improbable examples, as they involve unnecessary expenditure of time and trouble."

I would commend the above utterances of thoughtful educators to the attention of teachers. They might be multiplied indefinitely, but enough has been said to show how strong is the need, and

how general the tendency to reform our school work in arithmetic. What I have done in this direction has been hastily performed in the intervals of busy official duties, and with the hindrance of weariness and ill health, but I venture to hope that these efforts will, at all events, accomplish something in the desired direction.



SUGGESTIONS TO TEACHERS.

Although, in these graded examples, I have not gone beyond what has been taught in each grade of the public schools of San Francisco, in some classes, yet, as there is often a considerable variation in the proficiency of classes of the same grade, very much must be left to the judgment of the teacher. These type examples are intended as a help and not as a hindrance. For instance, in some Seventh Grade classes, many of the practical examples may be found entirely too difficult. In such cases, select the very easiest and simplest, and do not feel bound to accomplish the work of teaching the entire set during the year. I believe that, for the ordinary scholar, the first seven hundred problems, accompanied, of course, by practice on similar work, include all of arithmetic he needs for his after use; and the plan has this special value, that at whatever point a pupil closes his school life, he has not wasted an hour of his number work.

Very many pupils leave school at the close of the Fifth Grade. If this plan has been faithfully followed, these scholars should be able to work the four rules readily and surely, they can balance an ordinary cash account, they have a fair idea of measurements of rooms and of fields, and they are quick in computing the amount of bills in U. S. money. This constitutes a very fair equipment for the ordinary business of life.

There are included in the higher sets some examples which are not strictly practical; but these

will be found to have their use in training the mind to quickness and accuracy.

I would call special attention to the set of bills, cash accounts, and running accounts forming the tenth hundred. From an experience of years, I am of the opinion that nothing conduces to rapidity and accuracy in addition and multiplication—the two common operations of business—so much as frequent practice on bills. The teacher has here a large and varied selection for his use, and he will find it a great convenience and a saving of time to have each one carefully worked out for reference.

In the preliminary drill on the four rules, discard, absolutely, all mechanical helps, such as inserting auxiliary figures in subtraction or division, and teach your pupils to rely, from the first, upon their own minds. Use small numbers. Better many short examples than a few very long ones. Require neatness, system, and order in arrangement, but do not sacrifice too much time to these. Require pupils, invariably, to work an example a second time before giving the answer, so that they may learn to feel the same confidence in their work that a good accountant does when he has carefully gone over the computation of a bill.

It is an excellent plan to prepare a set of questions on cards, without answers, for use in the class. Every scholar having a different example, there can be no copying. Scholars who finish their examples promptly may be given others, and in this way all can be fully occupied. Try in every way to teach your pupils self-dependence, a quality which, in too many classes, seems to be strictly discouraged.

Whenever it would assist the proper understanding of an example, teach pupils to make use of *diagrams*. It will pay you to give a good deal of drill

on *factoring*. Scholars should learn thoroughly all the factors, both prime and composite, of all numbers under 100, and in connection with this should have constant drill in cancellation. A thorough command of this method of shortening arithmetical calculations can hardly be over-estimated.

In fractions, let the great bulk of your work be upon the fractions having small denominators, and give a great deal of practice in oral operations embracing halves, thirds, fourths, etc. At the proper time it is well to drill thoroughly on the properties and relations of numbers, but do not use large numbers, and let the bulk of the work be oral. Let the numbers under 100 be thoroughly understood. It is of much more practical importance that a scholar should be able to give readily the aliquot parts of such numbers as 48, 72, 96, and 80, than to take his slate and find the L. C. M. of 57.284 and 796.

Teach only *business* discount. Observe that the ordinary practice is simply to deduct a given per cent. In addition to this, however, merchants very generally allow an additional discount in consideration of a cash payment. The two discounts must be deducted separately. For instance, Messrs. A. L. Bancroft & Co. may allow a discount of 20 per cent. from the trade rates to a retail dealer, and sixty days' credit. If, however, the dealer sees fit to pay cash, an additional discount of 5 per cent. may be allowed from the previously diminished price. Deduct first the 20 per cent. and then the 5 per cent. of the remainder. A great deal of practice should be given to the ordinary cases of mensuration, such as board measure, surface of walls, area of fields, solid contents of walls and excavations, etc.

The measurement of the rectangle should be thoroughly learned at an early period, and later, that of the triangle and the circle. These are easily

learned, and will be found to be of frequent application.

In teaching simple interest, avoid the error, too frequently seen, of allowing or requiring pupils to carry out their work to four, five, or six decimal places, and do not require an answer which shall be exact to the last mill or cent.

There are several good methods of working interest, and the intelligent teacher will use his judgment as to which one is best in any particular case. It is best, of course, to accustom a class to work by one method thoroughly, before trying another; and in some cases, where time is limited, it would not be advisable to mention any other. But I think that if the "essentials" are only to be taught, abundant time will be found for various methods. I append an example, worked out by three different methods, all of which are good. A teacher, however, who is equally conversant with several different methods, will sometimes prefer the one, and sometimes the other.

Interest of \$1165.50 for 5 years, 3 months, 9 days,
at 7 per cent. per annum

1. Six per cent. method.

$$\begin{array}{r}
 \$1165.50 \qquad \qquad \qquad [\text{per cent.} \\
 316\frac{1}{2} = \text{int. of } \$1 \text{ for the time at } 6 \\
 \hline
 699300 \\
 116550 \\
 349650 \\
 58275 \\
 \hline
 6) 368.88075 \\
 \hline
 61.48 = \text{int. at } 1 \text{ per cent.} \\
 7 \\
 \hline
 \$430.36
 \end{array}$$

$$\begin{array}{r} 2. \quad \$1165.50 \\ \quad \quad .07 \\ \hline \end{array}$$

$$12 \mid 81.5850 = \text{int. for 1 year.}$$

$$6.79875 = \text{int. for 1 month.}$$

$$63.3 = \text{no. months in the time.}$$

$$\begin{array}{r} 2039625 \\ 2039625 \\ 4079250 \\ \hline \$430.36 \end{array}$$

$$\begin{array}{r} 3. \quad \$1165.50 \\ \quad \quad .07 \\ \hline \end{array}$$

$$\begin{array}{r} 81.5850 \\ 5 \\ \hline \end{array}$$

$$407.925 = \text{int. for 5 years.}$$

$$20.396 = \text{int. for 3 months.}$$

$$2.039 = \text{int. for 9 days.}$$

$$\begin{array}{r} \$430.360 \end{array}$$

For short periods a convenient method is to multiply by the rate and by the number of days, and divide by 360.

Ex.—Interest of \$88.96 at 6 per cent. for 4 months, 15 days.

$$\frac{88.96 \times .06 \times 135}{360} = \$2.00$$

One advantage of this method is that the work can be frequently shortened by cancellation.

There are many other suggestions which might be made to young teachers in regard to economizing time and labor in teaching arithmetic, but I have already gone beyond the limits which I had originally intended, and I will close with the earnest hope that these efforts to lighten the labors of the instructor, and make them more directly efficient in the way of practical results, may meet with the approval of my fellow laborers.

DUDLEY C. STONE.

SAN FRANCISCO, May 1, 1882.



SEVENTH GRADE.

1. A little boy had 27 marbles, and his father gave him 15 more. How many had he then?

2. In one week there are seven days; how many days in 36 weeks?

3. How many gloves are there in 87 pairs?

4. Mary is 8 years old, and her big brother is 19 years older than she. How old is her brother?

5. Annie had 13 almonds; she gave 7 to Mary, and lost 2. How many had she then?

6. Three boys were playing marbles; one of them had 38 marbles, another, 84, and the third, 96. How many marbles had all three of them?

7. One day I walked 29 blocks, the next day, 35 blocks, and the next 27 blocks. How far did I walk during the three days?

8. A farmer paid \$236 for some horses, \$359 for cows, and \$86 for fowls. How much did he pay in all?

9. In one class-room there are 47 pupils, in another 62, and in another 59. How many in all?

10. How many days in 253 weeks?

11. A man has 68 pigs in one pen, 72 in another, 84 in another, and 166 in another. How many in all?

12. A man had \$724 and lost half of it. How much had he left?

13. A boy spent 75 cents on one day, 25 cents on another, 80 cents on another, 95 cents on another, and 65 cents on another. How much did he spend during the 5 days?

14. There were 121 pounds of potatoes in one bag, 115 pounds in another, 109 in another, and 99 in another. How many pounds in the four bags?

15. If you go away with \$60 and spend \$26, how much will you bring back?

16. A man walked from one town to another in 4 days. The first day he walked 29 miles; the second day, 33 miles; the third day, 29 miles; and the last day 36 miles. How far was it from one town to the other?

17. Henry Gray earned 55 cents on Monday, 60 cents on Tuesday, 75 cents on Wednesday, 58 cents on Thursday, 85 cents on Friday, and 78 cents on Saturday. How much did he earn during the week?

18. A boy earned \$49 in January, \$55 in February, and \$48 in March. He spent \$111 during the three months. How much did he save?

19. If a man works for \$75 a month for four months, and spends \$200 in that time, how much will he save?

20. A farmer had 280 sheep, and his nearest neighbor had 155 more than he. How many sheep had the neighbor?

21. Mr. A. made \$565 last year, but Mr. B. made \$486 more than he. How much did Mr. B. make?

22. If you have 673 cards, and your father gives you 98 more, how many will you have then?

23. Susan is 19 years old, and her sister Mary is 18 years older than she. How old is Mary?

24. I am 53 years old, and my daughter is 21 years younger than I am. How old is she?

25. John bought a knife for 65 cents, and sold it for 35 cents more than he gave for it. How much did he get for it?

26. There are 30 days in June, 31 days in July, 31 in August, and 30 days in September. How many days in the four months?

27. A farmer has 59 horses, 67 cows, 36 calves, 345 sheep, and 286 hogs. How many animals has he in all?

28. If I spend \$3.50 for a hat, \$2.55 for a pair of shoes, and \$1.25 for a pair of gloves, how much do I spend in all?

29. How much will 366 pounds of chalk cost at 6 cents a pound?

30. Find the cost of 36 pounds of flour at 5 cents a pound, and 78 pounds of meal at 6 cents a pound.

31. If 4 horses cost \$344, how much will one cost?

32. Six boys own together 294 marbles. What is each boy's share?

33. Seven men are equal owners of 5292 acres of land. What does each man own?

34. A lady bought some silk for \$5, a pair of gloves for \$3, half a dozen handkerchiefs for \$4, and gave the salesman a \$20 piece. How much change should she get back?

35. Henry has 5 agates, and Sam 63 pures. Henry traded off his agates with Sam, receiving 10 pures for each agate. How many pures did Sam have left?

36. A little girl had half a dollar, and she spent three dimes and one five-cent piece. How much money had she left?

37. A farmer sold five cords of wood at \$8 a cord; how much did it come to? He bought pigs at \$4 apiece with the money. How many did he buy?

38. How many calves at \$9 apiece can I buy for 12 five-dollar pieces, and how much will I have left?

39. How many yards of cloth at \$3 a yard can I get for two twenty-dollar pieces?

40. James had \$30, and gave one-fifth of his money to his brother, and one-sixth of it to his sister. How much did he give away? How much had he left?

41. A woman had 24 chickens, and one-sixth of them died; how many were left?

42. Willie had 42 nuts, and Joe had 35. Each gave to little Robert one-seventh of all he had. How much did Robert get?

43. A girl has 9 almonds, and her brother has 4 times as many. How many have both?

44. If I buy a coat for \$7, and a vest for \$4, and give the merchant a \$20 piece, how much change must I get?

45. I had \$125, and one man paid me \$266, and another one \$374. How much had I then?

46. A man had \$5.50, and one man gave him \$2.25; another gave him \$1.75, and another \$6.45. How much had he then?

47. Andrew had 57 oranges, and he gave each of his two brothers 12 oranges. How many did he have left?

48. If I wish to give three boys 7 apples apiece and have 5 apples left, how many apples must I have at first?

49. If a kind man wished to give 7 poor families 6 sacks of coal each, how many sacks would it take?

50. Six boys did some work for which they received 276 cents. What was each boy's share?

51. From the sum of 224, 627, 354, and 786, subtract 1885.

52. In a field were 1725 horses, and 856 of them were sold. How many remained?

53. I bought a horse for \$175, and sold him again, gaining \$25. What did I get for him?

54. I sold a cow for \$121, and gained \$36 on the sale. What did she cost me?

55. If a girl can earn 95 cents a day, how much can she earn in a week of 6 days? How much in 5 weeks?

56. If two gallons of vinegar cost 40 cents, what will 9 gallons cost?

57. A locomotive ran 28 miles in an hour. How far did it run in 7 hours at the same rate?

58. In an orchard there were 246 apple trees, 329 plum trees, 487 pear trees, and 160 peach trees. How many trees in all?

59. Mr. Jones was 86 miles away from home, and went on in the same direction 55 miles farther. He then started back and traveled 140 miles. How far away from home was he then?

60. Find the whole cost of 284 articles at 5 cents a piece, 329 articles at 6 cents each, and 250 articles at 4 cents a piece.

61. I sold 496 lbs. of potatoes at 6 cents a pound, and 93 pounds of turnips at 7 cents a pound. What did I receive for them?

62. A lady bought 4 pairs of gloves at \$2.50 each, 7 yards of ribbon at 45 cents a yard, and 42 yards of cotton cloth at 13 cents a yard. What did it all come to?

63. What will 358 sheep cost at five dollars a piece?

64. If I spend \$5902 for sheep at \$2 a piece, how many can I buy?

65. If a boy earn \$48 a month, and spend \$29 a month, how much will he save in 7 months?

66. If a man have \$2416 in the bank, and draw out \$1869, how much will he have left?

67. John had \$3.65 given to him as a Christmas present, and he spent \$1.85. How much had he left?

68. In four classes of equal size there were 216 pupils. How many in each class?

69. If you earn \$20 in a month, and spend \$14, how much will you save in a month? How much in 29 months?

70. Mr. Gray has 315 head of cattle, but Mr. Bond has 286 more than that. How many cattle have both together?

71. At \$5 a piece, how many barrels of flour can be bought for \$9960?

72. At \$6 a piece, how many calves can be bought for \$7320?

73. A boy has \$5.50, one of his brothers has \$6.45, another brother has \$1.60, and his sister has \$7.25. How much have all the four children?

74. At \$33.50 an acre, how much will 7 acres of land cost?

75. A boy worked in a box factory, and made on one day 58 boxes, on another 65, on another 72, on another 59, on another 62, and on another 51. How many did he make in all, and how much did he get for it at 2 cents a box?

76. If I owed a debt of \$24.25 and paid \$15.65, how much did I still owe?

77. A man owed 859 dollars, and paid at one time 309 dollars and at another time 259 dollars. How much did he still owe?

78. Two boys together have 333 marbles, and one of them has 289 marbles. How many has the other?

79. If six cows cost \$144, how much will seven cows cost?

80. A man paid \$4,236 for a lot, which was \$1,880 more than the lot was worth. What was its real value?

81. Bought a house for \$4,629, which was \$1,290 less than it was worth. What was it worth?

82. A merchant had 762 bags of wheat. He sold 525 bags and afterward bought 359 bags more. How many had he then?

83. Two men had 947 acres of land together, they bought 587 acres more, and then divided the land equally between them. What was each man's share?

84. Three boys had 250 marbles together. They bought 485 more, and then divided them equally among the three. How many had each boy?

85. Richard had \$3.75; his father gave him 75 cents, and his mother gave him 80 cents. He spent \$2.25. How much had he left?

86. I bought some goods for \$586 and sold them for \$860. How much did I make on them?

87. Seven bags of barley contained 95, 97, 99, 94, 93, 96, and 97 pounds. What was it all worth at 3 cents a pound?

88. Find the cost of 29 yards of cloth at \$5 a yard, 96 yards at \$6 a yard, 236 yards at \$4 a yard and 52 yards at \$1 a yard.

89. If I start on a journey of 475 miles, and travel 7 days at the rate of 46 miles a day, how far shall I be on my way? How far from my journey's end?

90. How many days in 628 weeks?

91. Charley lent his brother at one time 35 marbles, at another 16, and at another 28. His brother gave him back 52 marbles. How many did he still owe him?

92. I bought a horse for \$125, and as I found he did not suit me, I sold him at a loss of \$67. How much did I get for him?

93. I have in my orchard 45 apple trees, 36 pear trees, 48 peach trees, and 75 plum trees. How many trees in all? I sold the fruit for \$5 a tree. How much did I get in all?

94. Jonas Bland bought one cow for \$35, another for \$25, and another for \$56. He sold them all for \$130. How much did he make?

95. A man bought three lots for \$856, \$725, and \$555. He sold them all for \$1,885. Did he make or lose, and how much?

96. Henry Goodfellow worked 187 weeks at \$5 a week. When he got his money he bought some clothes for \$27, some books for \$7, paid a debt of \$359, and gave his mother \$150. How much did he have left?

97. Eight men own equally a band of 2,016 cattle. How many cattle in each man's share?

98. I bought a lot for \$375, and sold it at a loss of \$288. How much did I get for it?

99. A boy had 134 marbles, and gave away one-half of them and 25 more. How many had he left?

100. If a man earn \$4 a day, how much will he earn in 127 weeks, working 6 days in a week?

SIXTH GRADE.

1. What will 8562 cows cost at \$36 a head?
2. If a man have \$1523 in the bank, and draw out \$982, how much money has he left in the bank?
3. A has \$55.29, B \$46.50, C \$82.41, D \$469.25, and E \$85.85. How much have they all together?
4. If two men start from the same town, one going due east 45 miles a day, and one west 57 miles a day, how far apart will they be in one day? How far in 8 days?
5. If a boy earn \$45 a month, and spend \$36 a month, how much will he save in 39 months?
6. I had \$8.50 in my pocket on Monday morning. During the day I received \$4.75, \$1.25, \$6.00, \$14.40, 95c., \$10, and \$29.30. I paid three bills—one of \$13, one of \$2.85, and one of \$7.85. How much money did I have at night?
7. If you earn \$18 a month, and spend \$11, how long will it take you to save \$84?
8. Find the cost of 582 lbs. wheat at 4c., 965 lbs. barley at 3c., 842 sheep at \$1.25, and 29 cows at \$15 each.

9. From the sum of 9685, 6234, 4863, 1588, 9261, 4080, 189, 562, 1349 and 7842, take 39865.

10. Subtract the product of 52 and 786 from the product of 950 and 79.

11. If you buy a hat for \$3 50, a pair of pants for \$6.25, and a pair of shoes for \$3.80, and give the merchant a twenty dollar piece, how much change must you get back?

12. If eight boys divide \$54.24 equally, how much will each have?

13. What is one-ninth of 234162?

14. What is one-seventh of 8498?

15. A man has a drove of 8500 horses, and buys two bands, one of 600 and one of 495. He then sells 1000 head; how many horses has he left?

16. Find the cost of 17 dozen cans of tomatoes at 22c a can.

17. Find the cost of 1463 pigs at \$2.50 each.

18. For \$2560, how many barrels of flour can I buy at \$5 a barrel?

19. A has 4390 sheep, and B has five times as many. How many have both?

20. A man has 9725 sheep, but his neighbor has 3480 more than he. How many have both?

21. In a school of 20 classes, 12 classes average 60 scholars each, and 8 classes 64 each. How many scholars in the school?

22. An eight-class school has 520 pupils. What is the average number in a class?

23. Two ships sail in opposite directions, one making 98 miles and the other 127 miles the first day. How far apart are they at the end of that time?

24. If six men buy a tract of land containing 23020 acres, what is each man's share?

25. A has 189 acres of land and B has 76 acres more than A. How many acres have both?

26. In a large flock there were 11110 sheep; 8297 of them died; how many were left?

27. If I owed a debt of \$124 and paid \$56.25, how much did I still owe?

28. I bought a house for \$672.75, and sold it for \$1246. How much did I gain?

29. Find one-eighth of 410408.

30. Nine sacks of wheat contain 82, 97, 63, 29, 36, 84, 95, 79, and 19 pounds. There were sold 488 pounds; how many pounds remained?

31. How much will I save in 419 days, if I earn \$2.50 a day and spend \$1.70 a day?

32. If I start to go to a place 500 miles away, and travel 12 days at the average rate of 34 miles a day, how far will I be from my journey's end?

33. If a man begin business with \$3000, and make \$247 a month for 45 months, how much will he be worth at the end of the time?

34. A man buys 84 lbs. sugar at 12c., 325 lbs. flour at 3c., 49 brooms at 37c., and 56 gallons syrup at 19c. How much does it all come to?

35. A farmer brings a load of wheat weighing 3650 lbs. into town, and sells it to a merchant at 2c a pound. He buys a saddle costing \$7.50, 50 lbs. nails at 5c per lb., a plow for \$6.25, an ax for \$2.25, and half a barrel of sugar for \$16.50, and gets the balance in cash. How much money does he receive?

36. Divide 411629 by 7.

37. A man had \$2150. He bought 537 sheep at \$2 a head, and 25 cows at \$23; how much money had he left?

38. In an orchard 76 trees yield 18 bushels of apples each, and 27 others 21 bushels each. How much would the apples be worth at 30c a bushel?

39. I bought a horse for \$55 and another for \$127. The next day I bought a third horse for as much as both the others cost. How much money did all three cost?

40. If Mr. Bond gave \$1429 for a piece of property and sold it at an advance of \$800, how much did he get for it?

41. I bought a horse for \$250 and sold him at a loss of \$78. How much did I get for him?

42. I bought two pieces of property, one for \$1560 and one for \$2362. I sold the first for \$2500, and the other for \$3000. How much did I make in all?

43. Queen Victoria was born in 1819. What is her age in 1881?

44. A man paid \$140 for a horse and \$165 for a carriage. He sold them both for \$300. Did he gain or lose, and how much?

45. How many days in 39 years of 365 days each, and 9 years of 366 days each?

46. How many days in 4926 weeks?

47. There are 12 inches in one foot; how many inches are there in 587 feet?

48. A man having 9720 sheep, sold at one time 2568, and at another 3462 sheep. How many had he left?

49. In one day there are 24 hours. How many hours in 2857 days?

50. Three men bought a piece of land for \$5000. One man paid \$2500 and another paid \$1200. How much did the third man pay?

51. Four men own a tract of land containing 625 acres. One man owns 240 acres of the land, another 127 acres, and a third 96 acres. How many acres does the fourth man own?

52. I earn \$175 a month, and I pay \$25 for rent, \$49 for provisions, and \$82 for other expenses. How much do I save in a month?

53. If a man average six five-cent cigars a day, how much will it cost him in ten years of 365 days each?

54. A house was built in a certain town in 1496, and it is still standing. How old is it in 1881?

55. Texas contains in round numbers 268000 square miles. How much larger is it than the six Eastern States together, containing as follows: Maine, 35000; New Hampshire, 9280; Vermont, 10212; Massachusetts, 7800; Rhode Island, 1306; Connecticut, 4750?

56. Borrowed of my neighbor at one time \$680, at another time \$925, and at another time \$356. I paid him \$1010. How much do I still owe him?

57. A merchant bought goods for \$1369. He paid \$159 freight on them, and then sold them for \$2490. How much did he make on them?

58. A farmer's income for the year was \$1710. He paid for repairing his house \$342, for farming utensils \$110, for hired help \$411, and for other expenses \$200. How much has he remaining?

59. A lady having \$312, paid for a bonnet \$28, for a shawl \$75, for a dress \$97, and for a cloak \$83. How much had she remaining?

60. $972 + 854 + 296 + 888 + 204 + 92 + 5493$
 $- 2897 = ?$

61. If twelve men can build a wall in 295 days, how long will it take one man to do the same work?

62. Find the cost of 5 pairs of shoes at \$3.50, 6 pairs at \$4.25, and 12 pairs at \$5.50.

63. How many cattle at \$8 a head could a man buy for \$72456?

64. How many acres of land at \$9 per acre can I buy for \$23292?

65. If you pay \$231 for a horse and one-third as much for a carriage, how much does the carriage cost?

66. If I pay \$496 for a piece of land and one-fourth as much for the crop which is growing on it, how much do I pay for both?

67. Add \$52.56, \$96.41, \$88.50, \$29.25, \$55, \$75.20, and \$40. Subtract \$188.49 from the sum.

68. Two friends separate at San Francisco, one to go east to New York and one west to China. The westward-bound man travels at the rate of 350 miles, and the other at 300 miles per day. How far apart will they be at the end of three days

69. A boy has \$185 in the savings bank and his brother has \$98. Their sister has twice as much as both her brothers; how much has she?

70. If you pay \$7550 for a farm, what must you sell it for to gain \$1899 on the sale?

71. The minuend is \$42.50 and the subtrahend \$19.85; what is the remainder?

72. In one gallon there are four quarts; how many quarts in 623 gallons?

73. A lady goes shopping with a twenty dollar piece. She buys one article for \$2.25, one for \$1.75, one for \$3.55, and one for 75 cents. How much change must she receive?

74. Add one-fourth of 7848 to one-fifth of 5235.

75. Take one-seventh of 2401 from one-third of 7002.

76. My farm is worth \$4000, my stock \$2500, my growing crop \$2000, and I have \$1875 in the bank. How much am I worth in all?

77. Find the cost of 27 lbs. sugar at 15c, 15 lbs. tea at 55c, 38 lbs. coffee at 24c, 25 lbs. codfish at 19c, and 200 lbs. flour at 3c.

78. I bought two pieces of land, paying \$4261 for one and \$2500 more for the other. How much did they both cost?

79. I divided 825 marbles among three boys, giving John 194, Henry 99, and Bob the remainder. How many had Bob?

80. I own a field which is 242 rods square. How many rods of fence will it take to enclose it?

81. How many feet is it round a yard which is 125 feet long and 75 wide? How much will it cost to fence it at 24c a running foot?

82. A field measures 124 rods long by 80 rods wide. If you walk all the way around it, how many rods will you walk?

83. How many inches are there in 847 feet, if there are 12 inches in one foot?

84. A miner averages two ounces of gold a day. If the gold be worth \$18 per ounce, how much will he make in 95 days?

85. Find the cost of 82 gallons of wine at 75c, 89 gallons at 92c, and 24 pairs gloves at 50c.

86. Find the cost of 6 lbs. chocolate at 18c, 12 lbs. flour at 20c, 6 pairs shoes at \$1.80, and 30 lbs. candles at 26c.

87. Find the cost of 86 shovels at 50c, 90 spades at 86c, 18 plows at \$11, 23 saws at \$3.50, and 14 hammers at 62c.

88. There are 16 ounces in one pound. How many ounces in 97 pounds?

89. There are 24 pennyweights in an ounce of gold, and each pennyweight is worth 80c. How much is a bar of gold worth weighing 5 ounces?

90. How many weeks are there in 434 days?

91. A man bought 25 hogsheads of wine at \$75 per hogshead, and sold it at \$84 per hogshead. How much did he make?

92. A man bought 187 head of cattle at \$13 a head, and sold them at \$19 a head. How much did he make?

93. What costs a farm of 365 acres at \$97 per acre?

94. A butcher bought a lot of beef weighing 765 pounds at 11c, and sold it at 9c per pound. How many cents did he lose?

95. At \$8 a barrel, how many barrels can I buy for \$932?

96. A boy had 96 marbles. He gave 5 boys 16 marbles each. How many had he left?

97. A father had \$5000, and gave each of his 4 boys \$950. How much had he left?

98. Richard Gale bought a ship for \$17,400, and sold her at a loss of \$2565. How much did he get for her?

99. A man left property worth \$10,000 to his wife, son and daughter. To the wife he bequeathed \$5500, to the boy \$1000, and the rest to the daughter. How much did she get?

100. Find the sum, the difference, and the product of 343 and 99.

FIFTH GRADE.

1. From the sum of 875, 932, 586, 429, 377, 756, 204 and 675, subtract 2885.

2. Add the difference of 12531 and 873 to the product of 327 and 36.

3. If I have \$1230 in the bank, and draw out \$572 on one day and \$89.50 on another, how much will I have left in the bank?

4. A man's income is \$175 a month, and he pays \$36 for rent, \$57 for provisions, and \$39 for other expenses. How much will he have left?

5. A man borrows \$730. He pays at one time \$89, at another \$206, and at another \$139. How much does he still owe?

6. A merchant having 3000 barrels of flour on hand, sold to one man 575, to another 725, to another 300 barrels. How many barrels has he left?

7. Three men bought a factory for \$30000. One paid \$12650, the second paid \$10785, and the third paid the remainder, which was how much?

8. If I buy a house for \$1200, and expend \$565.90 for repairs, \$75.75 for taxes, and \$118.40 for street assessments, how much has the house cost me in all?

9. A man was 34 years old when his son was born. How old will he be when his son is 30 years old?

10. A trader has \$250.35 on hand on Monday morning. He receives during the day—for cash sales \$184.50, and \$84 on account of old debts; he pays out for goods \$99.10, and for expenses \$15. How much money should he have on hand at night?

11. Cash on hand in the morning, \$112 70. Received during the day, \$5.20, \$8.62, \$5.98, \$11.25, \$8.20, and \$23.40. Paid out \$4.50, \$7.60, \$10, and \$40.40. How much cash on hand at night?

12. If I buy one article for \$7.50, one for \$3.25, one for \$1.75, and one for 80 cents, and hand the merchant a twenty dollar piece, how much change should I get back?

13. A man bought one lot for \$1640, and another for half that price. He sold them both for \$3500. How much did he gain?

14. A gentleman worth \$50000, left to his wife \$32750, to his son \$10500, and the rest to his daughter. How much did she receive?

15. If I am 775 miles from home, and travel towards home 39 miles a day for 15 days, how far shall I then be from home?

16. If two men start from the same place and travel in opposite directions, one going 37 miles and the other 68 miles a day, how far apart will they be in 29 days?

17. If two men start at the same place and time, and travel in the same direction, one going 75 miles and the other 88 miles a day, how far apart will they be in 47 days?

18. How long will it take one man to do a piece of work which 8 men can do in 53 days?

19. How long would it take 20 men to do a job of digging which would require one man's labor for 600 days?

20. How many feet in 19284 inches?

21. How many days in 475 weeks?

22. How many inches in $594\frac{1}{2}$ feet?

23. How many weeks in 3395 days?

24. In one square foot there are 144 square inches. How many square inches in 69 square feet?

25. In a yard with square corners, measuring 250 feet long and 96 feet wide, how many square feet?

26. How many square rods in a rectangular field 95 rods long and 47 rods wide?

27. How many rods around a rectangular field 172 rods long and 94 rods wide?

28. How many feet around a yard 75 feet long and 50 feet wide?

29. How many inches around a floor 30 feet long and 18 feet wide

30. At $5\frac{1}{2}$ cents a pound, what will 432 pounds of nails cost?

31. I had \$5292, and lost five-ninths of it. How much did I lose?

32. A man has a farm of 1345 acres, and sells four-fifths of it. How many acres does he sell?

33. Mr. Gray had a band of 2500 horses, and sold three-fifths of them. How many had he left?

34. I own two-sevenths of a lot valued at \$5733. How much is my share worth?

35. From the product of 582 and 49 subtract the product of 477 and 27.

36. How much more will 273 horses cost, at \$38 a head, than 189 cows at \$29 a head?

37. I had a band of 1594 cattle, and sold a lot to a drover at \$10, leaving me 999 head. How much money did I get for those I sold?

38. Three city lots cost me \$550, \$729 and \$800. I built three houses on them, costing \$1200, \$1275, and \$1500. I sold the entire property for \$8600. What was my gain?

39. The ceiling of a large room measured 36 feet in length by 24 feet in width. What did it cost to paint it at $3\frac{1}{2}$ cents a square foot?

40. How many square yards in a floor 21 yards long and $10\frac{1}{3}$ yards wide?

41. I bought 100 horses as follows: for 25 I paid \$30 each, for 40, \$48 each, and for the rest, \$50 each. What did they all cost?

42. A boy worked for a storekeeper 78 days at 90 cents a day. He took a part of his wages in goods, as follows: a suit of clothes for \$16.50, a cap for 75c, a pair of shoes for \$2.25, a pocket-knife for 65c, a pound of powder for 85c, shot, caps, etc., for 50c, and half a dozen handkerchiefs for \$1. How much cash was due him?

43. How many seconds are there in one day?

44. A granger sold a load of hay for \$29.50, and a load of wood for \$5.75. He received in payment a barrel of flour worth \$6.50, and the remainder in money. How much money did he receive?

45. Richard had \$9.75, Henry had \$1.25 more than Richard, and George \$2 more than both the others. How much had they all?

46. From $\frac{2}{3}$ of \$829.20, subtract $\frac{3}{4}$ of \$341.80.

47. My field contains 2400 square rods, and is 50 rods long. How wide is it?

48. The floor of a room contains 600 square feet, and is 30 feet long. How wide is it?

49. My front yard is 25 yards wide and contains 1500 square yards. How long is it?

50. Find the cost of 521 sheep at \$3.20, 400 hogs at \$1.10, and 42 horses at \$28.

51. John Sims owed Mr. Bates \$125. He worked for him 76 days at \$1.15 per day. How much did he still owe him?

52. Into how many lots, of 38 acres each, can a tract of 1596 acres be divided?

53. Wm. Burns has 17 horses, the entire value of which is \$4386. What is the average worth of each horse?

54. How many eggs at 38 cents a dozen can be bought for \$6.84?

55. In 42 miles there are 221760 feet. How many feet in one mile?

56. Find the cost of 75 yards of carpeting at \$2.12, 37 yards drugget at \$1.20, 8 rugs at \$4.16, and 5 mats at \$2.35.

57. Find the cost of 37 bbls. pork at \$24.30, 127 bbls. flour at \$6.25, 169 gallons molasses at 43c, and 29 firkins butter at \$5.35.

58. Find the cost of 3 boxes of raisins at \$4.65, 5 bbls. kerosene at \$5.75, 25 dozen brooms at \$2.40 per dozen, and 13 dozen spices at \$1.10.

59. Mrs. Dana bought of G. Smith & Co., 25 yds. calico at 10c, 37 yds. sheeting at 18c, 2 pairs of gloves at \$1.50, one sun-umbrella at \$6.25, 5 yds. Hamburg edging at 25c, and 7 pairs hose at 85c. Find the entire cost.

60. A farmer sold his butter at 34c a pound, and received for it \$123.42. How many pounds did he sell?

61. If fifteen tons of hay cost \$125.25, what will 38 tons cost?

62. If nine yards of cloth cost \$52.20, what will 67 yards cost?

63. If I pay \$754 for 26 cows, what will 100 cost at the same rate?

64. Find the cost of $127\frac{1}{2}$ pounds sugar at 14c, 210 pounds wheat at $3\frac{1}{2}$ c, 185 pounds barley at $2\frac{1}{5}$ c, and 399 pounds rye at $2\frac{1}{3}$ c.

65. The dividend is 232323 and the divisor is 13. What is the quotient?

66. Two boys run four times around a block which is 580 feet square. How many yards do they run?

67. Bonaparte was declared Emperor in the year 1804, when he was 35 years of age. In what year was he born?

68. A man paid \$8024 for a tract of land at the rate of \$17 per acre. How many acres did he buy?

69. At 15c a yard, how much muslin can I buy for \$36.90?

70. A has 395 acres of land, worth \$27 an acre; B has 493 acres, worth \$19 an acre. How much are both their farms worth?

71. If a young man's salary be \$600 a year, of which he takes \$45 to buy books, and \$300 for board and other expenses, how much will he save in 7 years?

72. What is the cost of 27 pieces of cloth, each containing 30 yards, at \$4 a yard?

73. How many barrels of flour, at \$9 a barrel, will be required to pay for 36 barrels of apples at \$2 a barrel?

74. If 24010 chestnuts be divided equally among 49 boys, how many will each get?

75. A man bought 640 sheep for \$3000. He sold 220 of them at \$4 apiece, 250 at \$6 apiece, and all the rest for \$800. How much did he gain?

76. The dividend is 9025, the divisor is 19. What is the quotient?

77. A man bought 76 cords of wood at \$5 a cord, 119 tons coal at \$7 a ton, and 79 tons of hay at \$27 a ton. How much will he gain if he sells them all for \$3500?

78. John has 113 marbles, William has twice as many and 19 more, and Frank has 25 more than both the others. How many marbles have they all?

79. If a ship sail, on an average, 15 miles an hour, how many hours will it take her to travel 11295 miles?

80. A man buys 7 pounds of sugar at 9 cents a pound, 11 pounds of flour at 6 cents a pound, and 13 oranges at 2 cents apiece. He hands the storekeeper a \$2 bill; how much change will he get back?

81. In an orchard of 219 apple trees, the average yield of each tree was 3 barrels of fruit, worth \$1.50 a barrel. What was the whole yield worth?

82. Mr. Brown bought two farms; one of 87 acres cost him \$54 an acre; the other, of 101 acres, cost him \$37 an acre. He paid down \$8140. How much was still due?

83. Find the sum, the difference and the product of 2562 and 894.

84. A mile is 5280 feet. How many steps, of 2 feet each, will a boy take in walking 5 miles?

85. A drover bought 27 head of cattle at \$38.25 a head. It cost him \$25.35 to drive them to market, and he sold them for \$1400. What did he gain on them?

86. A boy lives 2346 yards from the school-house. How many steps of 2 feet each will he take in walking that distance?

87. Divide \$944.52 equally among 12 men; what will be the share of each?

88. If 9 square feet make one square yard, how many yards in 895248 square feet?

89. I bought a tract of land for \$5670, and sold it for \$7896, and I divided the gain among my six boys. How much does each get?

90. In a book of 153 pages, how many words are there, if there are, on an average, 11 words to a line, and 65 lines to a page?

91. If I sell three-fifths of a piece of land containing 1285 acres, how many acres have I left?

92. If I give to my children $\frac{3}{4}$ of my farm, containing 2148 acres, how much have I left?

93. Find the cost of 488 lbs. sugar at $11\frac{1}{2}c$, 462 lbs. salt at $3\frac{1}{2}c$, and 186 lbs. coffee, at $22\frac{1}{2}c$.

94. A man bought 73 hogsheads of molasses at \$29 per hogshead, and sold it at \$37 per hogshead. What did he gain?

95. Mr. T. set out from Boston to walk to New York, the distance being 223 miles, and walks 27 miles a day for 6 days in succession. What distance remains to be traveled?

96. N. Green sold 49 bushels of corn at 55 cents a bushel, which cost him only 37 cents a bushel. How many cents did he gain?

97. Bought 288 barrels of flour for \$1728. I sold the same at \$8 per barrel. How much did I gain?

98. The difference between two numbers is 1282, and the smaller number is 4869. What is the larger?

99. Bought two lots of wild land; the first contained 144 acres, for which I paid \$12 per acre; the second contained 109 acres, which cost \$15 per acre. I sold both lots at \$18 per acre. What was my gain?

100. A father and four sons worked for 67 days in a manufactory. The father received \$1.25 per day, one boy got 95c, another 80c, another 75c, and the fourth 55c per day. How much money did they all earn in that time?

FOURTH GRADE.

1. A mechanic earns \$45 a month, and his necessary expenses are \$27 a month. How long will it take him to pay for a farm of 50 acres at \$27 an acre?

2. Two men travel in the same direction, and from the same place. One goes 43 miles, and the other 52 miles a day. How long will it be before they are 72 miles apart?

3. A man earned in 6 months the following amounts: \$36, \$42, \$24, \$30, \$36, and \$27. What were his average monthly earnings?

4. What is the average length of 5 boards, measuring as follows: 10ft., 17ft., 12ft., 13ft., and 15 ft.?

5. Ten bags of wheat contain 99, 101, 108, 98, 97, 96, 93, 100, 105, and 106 lbs. Find the average number of pounds to a bag.

6. Three men bought a ship valued at \$33485. The first agreed to pay \$7560, the second agreed to pay twice as much, and the third the remainder. How much was the third to pay?

7. If I receive \$1500 salary per year, and pay \$425 for board, \$300.50 for clothing, \$111.25 for books, and \$195.50 for other expenses, how much can I save in 4 years?

8. A man owed \$15760, and being unable to pay in full gave up all he had, consisting of 5 lots of land worth \$730 each, 5 horses valued at \$156.50 each, a mining interest worth \$2000, and \$1728.75 in money. How much remained unpaid?

9. Bought 150 barrels of flour for \$1150, and finding 35 barrels of it spoiled, sold the remainder at \$8 a barrel. Did I lose or gain, and how much?

10. A farm house is worth \$1623, the farm is worth three times as much, plus \$1100, and the stock is worth twice as much as the house, minus \$1250. What is the value of the whole?

11. There are 160 square rods in an acre. How many acres in a rectangular field 420 rods long and $184\frac{1}{2}$ rods wide?

12. There are 9 square feet in one square yard. How many square yards in the floors of two rooms, one measuring 36 feet long by $24\frac{1}{4}$ feet wide, and the other $52\frac{1}{4}$ long by 40 wide?

At \$1.17 per square yard, what will it cost to carpet both rooms?

13. A drover started from home with \$3000. He bought 27 head of cattle at \$25, 30 head at \$22.50, 11 head at \$42.50, and 40 horses for \$825. He sold the cattle in a body for \$33 a head, and the horses for \$41 a head. After paying his expenses, which amounted to \$150, how much money had he?

14. Find the sum, the difference, and the product of $2\frac{4}{5}$ and $1\frac{7}{8}$.

15. B bought 886 acres of land at \$15 per acre, and sold it at \$43 per acre. What did he gain?

16. Find the cost of 86 shovels at 50c, 90 spades at 86c, 18 plows at \$11, 23 hand-saws at \$3.50, 14 hammers at 62c, 12 mill-saws at \$12.12, and 46 cwt. iron at \$12 per cwt.

17. Find the cost of 37 chests of tea at \$23.75, 42 chests at \$17.50, 43 casks wine at \$99, 12 crates crockery at \$175, 19 barrels flour at \$7, and 23 bushels rye at \$1.52

18. Find the cost of 27 Readers at 20c, 10 Lexicons at \$3.90, 7 Webster's Dictionaries at \$4.75, 19 Bibles at \$2.93, and 20 Testaments at 37c.

19. I bought of Collins & Son, 12 yds. broad-cloth at \$3.84, 18 yds. cassimere at \$2.25, 10 yds. satinnet at $87\frac{1}{2}$ c, 42 yds. flannel at 45c, and 35 yds. silk at \$1.18. What did it all come to?

20. Find the cost of 14 plows at \$10.50, 8 harrows at \$9.80, 120 shovels at 90c, and 175 hoes at 62c.

21. Find the cost of 25 doz. Fifth Readers at \$1.05 apiece, 36 doz. Fourth Readers at 92c each, 40 doz. Third Readers at 85c apiece, and 32 doz. Second Readers at 72c each.

22. Two men leave the same place and travel in opposite directions, one at the rate of 55 miles per day, and the other at the rate of 59 miles per day. How far apart will they be in 96 days?

23. I bought 50 bbls. flour for \$400. For what must it be sold per barrel to gain \$100?

24. A man has a bicycle which he can run at the rate of 280 rods in 8 minutes. How many minutes will it take him to run it 630 rods?

25. A farmer needed \$140 to pay a debt. He sold 28 barrels of apples at \$2.75 per barrel, and enough rye at 50c a bushel to raise the remainder. How many bushels of rye did it require?

26. From eleven-fourteenths of 3276, take three-seventeenths of 6205.

27. From $\frac{7}{8}$ of 150824, take $\frac{3}{5}$ of 101010.

28. A man owning a tract of land containing 1695 acres, sold seven-fifteenths of it for \$35 per acre. How much did it come to?

29. A man owing \$32592 paid seven-twelfths of the debt. How much did he still owe?

30. How many years, of 365 days each, in 210605 days?

31. How many seconds in a leap year of 366 days?

32. How many minutes in four months of 30 days each, and two months of 31 days each?

33. How many inches around the edge of a carpet $20\frac{1}{2}$ feet long and 16 feet wide?

34. A man walked five times around a rectangular field which was 1200 rods long and $562\frac{1}{2}$ rods wide. How far did he walk?

35. How many inches around the edge of a flat slab of marble which is $7\frac{1}{2}$ ft. long and 4 ft. wide?

36. Three men own a tract of land containing $1782\frac{1}{2}$ acres. The first owns $842\frac{1}{8}$ acres, and the second $581\frac{3}{4}$ acres. How many acres does the third own?

37. Four boys engage to work as follows: the first to receive 98c, the second \$1.10, the third \$1.25, and the fourth \$1.50 per day. How much will they all earn in 87 days?

38. A man owning two lots, one containing $17\frac{3}{4}$ square rods and the other $18\frac{5}{12}$ square rods, bought a third lot containing $20\frac{2}{3}$ square rods. How many square rods has he in all?

39. Find the cost of 15 cords of wood, at $\$4\frac{5}{8}$ a cord.

40. Find the cost of 28 bushels of corn, at $\frac{6}{16}$ of a dollar a bushel.

41. What is $\frac{4}{5}$ of $156\frac{2}{3}$ acres of land worth, at $\frac{5}{6}$ of $\$54\frac{9}{10}$ per acre?

42. Paid $\$65\frac{7}{8}$ for a horse, and sold him for three times what he cost. What was the gain?

43. At $\frac{7}{8}$ of a dollar a basket, what are 124 baskets of peaches worth?

44. From a board $9\frac{7}{8}$ ft. long, there was cut off a piece $5\frac{1}{2}$ ft. long. How long was the remaining piece?

45. Having to travel eight and three-sevenths miles, I walk in an hour $4\frac{4}{5}$ miles. How much have I still to travel?

46. The dividend is 21775, and the quotient 25. What is the divisor?

47. The minuend is $841\frac{1}{3}$, and the subtrahend $281\frac{1}{4}$. What is the remainder?

48. In 56960 acres, how many square miles, reckoning 640 acres to a square mile?

49. Find the cost of 754 lbs. sugar at $12\frac{1}{2}$ c, 892 lbs. at $11\frac{1}{4}$ c, and 500 lbs. at $9\frac{3}{5}$ c.

50. From the sum of three-fifths, seven-eighths, two-thirds, and five-sixths, subtract the sum of one-fourth, one-fifth, one-sixth, and one-fifteenth. Reduce the answer to its simplest form?

51. Cash on hand in the morning, \$85.40. Received during the day, \$10.20, \$1.25, 95c, \$2.40, \$5, \$11.45, \$2.75, 80c, 75c, \$3.10, and \$1. Paid out during the day, \$4.50, \$9.50, 90c, 45c, \$14, \$2.50, \$1.15, \$5. Required, cash on hand at night.

52. If 17 sets of harness cost \$289, what do 9 sets cost?

53. If 85 cows cost \$2380, what will 76 cost at the same rate?

54. In a square foot there are 144 square inches. How many square inches in six and thirteen-sixteenths square feet?

55. In $256\frac{3}{4}$ weeks how many hours?

56. There are 5280 feet in a mile. How many steps will Mr. Long require to walk $7\frac{1}{4}$ miles, if his steps measure full three feet each?

57. James Joy bought $291\frac{3}{5}$ lbs. of tea at 55¢ a pound, and $149\frac{3}{4}$ lbs. coffee at 36¢ a pound. He gave in return 3500 lbs. wheat at $2\frac{1}{4}$ ¢, and the rest in money. How much cash did he pay?

58. A ship is worth \$17584. The captain owns one-fourth of her, the mate one-eighth, and the rest belongs to the builder. What is his share worth?

59. Cash on hand November 1st, \$562.50. Received Nov. 1st, \$275, \$394, \$510, \$110.50; Nov. 2d, \$89, \$196.75, \$20. Paid out Nov. 1st, \$330, \$110, \$88.75; Nov. 2d, \$100, \$99.40, \$55.75. Required, cash on hand on the evening of Nov. 2d.

60. If I have traveled 187 miles away from home, and keep on traveling in the same direction 55 days, at 47 miles a day, how far shall I then be from home?

61. Amos Gale lost 87 marbles, which was three-fifths of all he had. How many had he left?

62. A reckless young man gambled away \$13,250, which was five-eighths of his fortune. How much had he left?

63. Six brothers, all successful business men, acquired money in five years as follows: the first one made \$27400, the second \$32000, the third \$45780, the fourth \$26900, the fifth \$40000, and the sixth \$54252. What was the average amount of their gains?

64. A man's income is $5\frac{1}{2}$ ¢ a minute. How much is it in a year of 365 days?

65. A rectangular field contains 2907 square rods, and is $80\frac{3}{4}$ rods long. How many rods wide is it?

66. Four girls have worked $8\frac{5}{6}$ yards of edging. Mary worked $2\frac{1}{2}$ yds., Ella $1\frac{3}{5}$ yds., and Lena $1\frac{7}{10}$ yds. How many yards did Clara, the fourth girl, work?

67. A sheet of copper, measuring $4\frac{3}{4}$ ft. by 3 ft., cost one and one-fourth cents per square inch. What was its whole value?

68. How many pounds of cheese at 16c a pound, are worth as much as 1300 bushels of barley at 72c a bushel?

69. Bought 138 acres of land for \$7590, and sold 92 acres at \$74, and the rest at cost. What was the gain?

70. A drover bought 375 head of cattle at \$28. He sold 187 head at \$46, and the rest at cost. What was his gain?

71. At $3\frac{1}{4}$ c a square foot, what will it cost to paint the ceiling of a hall 96 feet long and 12 feet wide?

72. At 7 mills apiece, how many slate pencils can be bought for \$34.30?

73. At $3\frac{1}{5}$ mills each, how much will 3585 apples cost?

74. If a man's income from his rents is $8\frac{1}{3}$ mills a minute, how much will it be per year of 365 days?

75. A man paid \$92 for a horse, \$315 for 12 cows, and \$35 for some sheep. How much money had he left out of a \$500 bill?

76. At \$19 an acre, how many acres of land can be bought for \$9025?

77. If \$1296 be divided amongst 9 men, how many calves, at \$6, can each man buy?

78. If a man walked 1445 miles in 17 weeks, and walked only 5 days in each week, how many miles did he walk each day, on an average?

79. What will 36 boxes of sugar cost, each containing $26\frac{1}{2}$ pounds, at $12\frac{1}{2}$ c per pound?

80. A rancher bought 640 sheep for \$3200. He sold 210 of them at \$4, 250 at \$6, and the remainder for \$750. Did he gain or lose, and how much?

81. A man sold his crop of hay for \$945. He then bought 15 pigs for \$35, a lot of poultry for \$25, 40 sheep for \$120, and he paid \$30 for sundry small articles. How many cows, at \$35 each, can he buy for the remainder?

82. An army of 10000 lost 1945 men in one battle and 645 in another. How much money, at \$45 per soldier, did it take to pay off the remaining men?

83. The sum of seven equal numbers is 3402. What is each number?

84. A grocer bought 130 bags of coffee at $\$5\frac{1}{2}$ per bag, and 115 bags at $\$4\frac{1}{5}$ per bag. How much would he gain by selling the whole at \$6 per bag?

85. How many pieces of $4\frac{1}{4}$ yards each can be cut from $43\frac{3}{4}$ yards of silk?

86. At $\$2\frac{1}{2}$ apiece, how many shirts can be bought for $\$672\frac{1}{2}$?

87. At one-third of a cent apiece, how many pears can be bought for $\$43\frac{2}{3}$?

88. If a grammar cost 64 cents, how many grammars can be bought for \$20.48?

89. If 396 pounds of opium cost \$894.96, how much was the opium worth per pound?

90. How much money will be required to buy 117 horses at $\$215\frac{1}{3}$ apiece, and 61 cows at \$76 each, and have \$400 left?

91. What will 1296 eggs cost at 55 cents a dozen?

92. How much change will a man get out of a \$5 gold piece, after buying 11 pounds of sugar at 9 cents a pound, and 35 pounds of flour at 4 and one-fifth cents a pound?

93. Three pieces of cloth contained respectively, $16\frac{2}{3}$ yds., $14\frac{3}{5}$ yds., and 17 and five-ninths yds. How many yards were there in all those pieces?

94. A man bought 6 sheep for $\$18\frac{4}{5}$, a cow for $\$62\frac{3}{4}$, and a ton of hay for $\$17\frac{1}{2}$. How much has he left out of $\$225$?

95. If I pay $\$2\frac{3}{4}$ apiece for 156 sheep, $\$1\frac{1}{4}$ each for 88 hogs, 75 cents each for 340 chickens, and $\$20$ apiece for 14 cows, how much money will I have left out of $\$1500$?

96. A certain rope was $42\frac{1}{2}$ yards long. From it I cut one piece of $11\frac{1}{4}$ yds. in length, another of $12\frac{3}{4}$ yds., and a third of eight and five-sixths yards. How much was left?

97. From a block containing 91608 square yards, how many lots can be laid off, each containing $555\frac{1}{5}$ square yards?

98. Mr. Nelson lost $\$4505$ in speculating, which was five sixths of all he had. How much had he left?

99. If a man spends 35 cents a day for tobacco, in how many days will he spend $\$357$?

100. In a school containing six Fourth Grade classes, averaging 56 pupils each, and five Third Grade classes of 42 each, six-sevenths of each class were promoted. How many "hold-overs" were left behind in these two grades?

THIRD GRADE.

1. A United States Senator receives \$5000 a year. If he spends, on an average, \$8 a day, how much of his salary will he save in his 6 years' term, allowing 365 days to the year?

2. If a man earns \$1250 a year, and his yearly expenses are \$975, in how many years will he lay up \$3850?

3. A merchant began business with \$27000. At the end of 9 years he was worth \$34875. How much a year had he made?

4. How many cords of wood, at \$5.50 per cord, will pay for 2 hogsheads of sugar, containing 1160 lbs. each, at $11\frac{1}{2}$ c per pound?

5. A person bought 97 acres of land, at \$102 per acre, and 111 acres at \$54 per acre. He paid \$14,533 cash, and for the balance gave 5 horses. What was the average value of each horse?

6. Mr. Gilman bought a house at auction for \$1872.75. He paid \$565 for improvements and repairs, \$138.50 for taxes and street assessment, and then sold the property for two and a fifth times what it had cost him. What did he get for it?

7. A broker sold 3 houses; for the first he received \$2475, for the second \$860 less than for the first, and for the third \$529 more than for both the others. How much did all three bring him?

8. In three years a man has spent his entire income of \$4599. How much per day have his expenses averaged?

9. Arthur has 18 marbles, Albert has 7 times as many plus 31, and Walter has one-fifth as many as both the others, minus 9. How many have they all?

10. John and Henry are 40 rods apart, and John, who is foremost, is running at the rate of 33 rods in a minute, while Henry is pursuing at the rate of 38 rods a minute. In how many minutes will he overtake him?

11. Two ships are 1265 miles apart, and are sailing towards each other. If one averages 120 miles, and the other 110 miles a day, in how many days will they meet?

12. A company of 13 persons buy a tract of land for \$19996, of which one man pays \$2500, and the others pay the remainder in equal amounts. What did each of the others pay?

13. A cistern containing 1680 gallons has two pipes, through one of which 60 gallons will run into it in an hour, while through the other 45 gallons will run out of it in an hour. If the cistern is empty, and both pipes are open, how much water will be in the cistern at the end of an hour? In how many hours will it be filled?

14. Two stock men have, together, 15290 head of stock. One has 5150 more than the other. How many has each?

15. How many square feet in the ceiling of a room $33\frac{1}{2}$ ft. long, 22 ft. wide, and 18 ft. high? How many square feet in both end walls? In both side walls? In all the walls and the ceiling? How many square yards in all?

16. At $13\frac{1}{2}$ ¢ a square yard, how much will it cost to tint the walls and ceiling of a room 36 ft. long, $20\frac{1}{2}$ ft. wide, and 18 ft. high?

17. A certain room is $25\frac{1}{2}$ ft. long and 18 ft. wide. At 98c per square yard, how much will it cost to carpet it?

18. How many acres in a field $162\frac{1}{4}$ rods long, and 188 rods wide? How many rods around the field?

19. How much will it cost to fence a yard 110 ft. by $46\frac{1}{2}$ ft., at \$2.25 per running foot?

20. How many square feet in the walls and ceiling of a hall 63 ft. long, 8 ft. wide, and 18 ft. high? How many square yards? Taking out 6 doors, each 7 ft. high and 3 ft. wide, how much will it cost to paper it at $5\frac{1}{2}$ c a square yard?

21. What will it cost to excavate a cellar 40 ft. long, 24 ft. wide, and 10 ft. deep, at $1\frac{1}{2}$ c per cubic foot?

22. A square field measures 320 rods on a side. How many acres does it contain?

23. At $3\frac{3}{4}$ c per ounce, what will 8 lbs. of indigo cost?

24. At $2\frac{1}{2}$ c per gill, what will $12\frac{1}{2}$ gallons of wine cost?

25. Find the cost of 97 barrels of flour at \$6.25, 69 bushels rye at \$1.16, 136 bushels corn at 67c, 76 tons coal at \$9.65, and \$89 tons iron at \$69.70.

26. Find the cost of 10 pair boots at \$5.75, 19 pair shoes at \$3.50, 83 pair hose at \$1.20, 27 pair gloves at \$1.25, and 16 doz. handkerchiefs at \$3.25.

27. At \$47 per acre, how much land can I buy for \$177425?

28. Find the cost of $889\frac{1}{3}$ lbs. nails at 6c, 1145 lbs. iron at two and one-fifth cents, 194 lbs. spikes at 5c, 8 doz. files at \$4.75 per doz., 260 lbs. steel at $4\frac{3}{4}$ c, and 14 doz. hammers at \$13 per doz.

29. At \$1.81 per square yard, what is my city lot worth, measuring 150 ft. long by 87 ft. wide?

30. At \$12.50 per square foot, what is a sheet of silvered copper worth, measuring 8 ft. by $3\frac{1}{2}$ ft.?

31. Find the cost of 12 boards at 93c, 20 boards at \$1.15, 16 scantling at 32c, and 7 planks at \$1.40.

32. Four men own together $763\frac{5}{8}$ acres of land. The first has $182\frac{1}{2}$ acres, the second $110\frac{3}{4}$ acres, and the third $250\frac{7}{8}$ acres. How much does the fourth own?

33. From a piece of timber $76\frac{1}{4}$ ft. long, there were cut one piece $15\frac{1}{3}$ ft. long, two pieces each $12\frac{1}{2}$ ft. long, and one piece $8\frac{2}{3}$ ft. long. How many feet long was the remaining piece?

34. From a city lot measuring 130 yds. square, were sold five lots, each 30 yds. long and $14\frac{1}{2}$ yds. wide. How many square yards remained?

35. A man has one-tenth of his cattle in one field, two-sevenths of them in another, one-fifth of them in another, and the remainder in a fourth field. What part of the whole are in the fourth field? These last number 87 head; how many has he in all?

36. If I had \$14 $\frac{5}{8}$, and spent \$2 $\frac{1}{2}$ for a hat, \$1 $\frac{3}{4}$ for handkerchiefs, \$3 $\frac{1}{3}$ for shoes, and \$2 $\frac{7}{8}$ for underclothes, how much had I left?

37. At 4 $\frac{1}{2}$ c per ounce, what will 11 $\frac{5}{8}$ pounds of copper sulphate cost?

38. How many dozen bottles, containing $1\frac{3}{4}$ pints each, are required to bottle 63 gallons of wine?

39. At \$1 $\frac{2}{5}$ per gallon, what will $13\frac{1}{4}$ gallons of oil cost?

40. At $3\frac{1}{4}$ bushels of rye to the acre, how many acres can be sown with $23\frac{2}{3}$ bushels?

41. If one bushel of oats cost 77c, how many bushels can be bought for \$18 $\frac{19}{100}$?

42. If $2\frac{3}{4}$ yards of cloth cost \$7.70, what will $\frac{3}{5}$ of $\frac{5}{6}$ of a yard cost?

43. How many square inches in a pane of glass $10\frac{1}{2}$ inches by $7\frac{3}{4}$ inches? How many inches around the edge?

44. C walks $3\frac{7}{8}$ miles and D $3\frac{1}{2}$ miles per hour. If they start from the same place and travel in opposite directions, how far apart will they be in one hour? In $4\frac{4}{5}$ hours?

45. Paid \$361 $\frac{7}{8}$ for a horse, and sold him for $\frac{4}{5}$ of what he cost. What was the loss?

46. If a boy earn six and two-thirds dollars, and spend five and a half dollars, per week, how much will he save in ten and one-half weeks?

47. Gave \$120 for $7\frac{1}{2}$ tons hay. How many tons can be bought for \$75?

48. If an estate is worth \$27564, what will $\frac{1}{2}$ of $\frac{3}{4}$ of $\frac{4}{5}$ of $\frac{5}{9}$ of it be worth?

49. If $\frac{2}{5}$ of 4 acres of land cost \$205 $\frac{2}{3}$, what will $\frac{3}{4}$ of 10 acres cost?

50. If $\frac{2}{3}$ of a farm is worth \$5400, what is $\frac{7}{12}$ of it worth?

51. The four sides of a field measure, respectively, 34.72 rods, $48\frac{11}{16}$ rods, 152.17 rods, and $56\frac{5}{8}$ rods. How many rods of fence will enclose the field?

52. What will 2118 eggs cost at 24c a dozen?

53. Cash on hand in the morning, \$115.80; received during the day, \$7.20, \$1.50, \$3, \$1.10, \$4.50, \$10, 75c, 92c, \$3.35, \$1.90, \$8.75, \$3.50, and \$7.75. Paid out during the day, 50c, \$1.45, \$11, \$4.40, \$28.20, \$30, \$5.50, and \$25. Required, cash on hand at night.

54. Find the cost of 1756 brooms at \$2.97 per dozen.

55. What are 53450 lbs. of wheat worth at \$1.95 per cental? (100 lbs.)

56. How much must I pay for 9250 bricks at \$17 per thousand?

57. From eleven and two-thirds take the sum of four-fifths, three-fourths, seven-eighths, one-sixth, seven-twelfths, one and three-tenths, and eleven-fifteenths. Multiply the remainder by 48.

58. A capitalist owns $\frac{4}{5}\frac{1}{6}$ of a factory valued at \$105056, and $\frac{1}{5}\frac{1}{8}$ of a steamer worth \$126498. What are his two interests worth?

59. I owned a lot containing $5286\frac{1}{2}$ square yards. I sold 5 lots, each 50 yds. long and $7\frac{1}{2}$ yds. wide. How many square yards have I left?

60. Find the cost of $\frac{7}{8}$ of a yard of velvet at \$15 $\frac{3}{5}$ a yard, and $\frac{3}{4}$ of a bolt of ribbon at \$5 $\frac{3}{8}$ per bolt?

61. In four months a family burned $1\frac{1}{2}$ tons, $2\frac{5}{8}$ tons, $2\frac{3}{16}$ tons, and $1\frac{3}{8}$ tons of coal. What was the average per month?

62. Three loads of hay weighed upon the scales $47\frac{7}{25}$ hundredweight, $42\frac{4}{25}$ hundredweight, and $38\frac{1}{20}$ hundredweight. The wagon weighed 15 hundredweight. What was the whole weight of the hay?

63. A stationer buys paper at \$1.90 per ream, and sells it at $\frac{3}{4}$ of a cent. per sheet. How much profit does he make on a ream?

64. A tight board fence $8\frac{1}{4}$ feet high was built around a yard 120 feet long and 52 ft. wide. How many square feet in one end-fence? In one side-fence? In the whole fence?

65. A certain wall is 106 ft. long and 32 feet high. In it there are 30 windows, each 6 feet by $2\frac{1}{2}$. How many square feet in the wall, leaving out the windows? What will it cost to paint it at 2 cents a square foot?

66. Mr. B divided $30\frac{4}{5}$ pounds of flour among some poor women, giving each $2\frac{4}{5}$ pounds. To how many did he give it?

67. A ton of ore from a certain mine yields 652 of a ton of pure iron. How much will be obtained from 265.21 tons?

68. An oil refiner has 16745 gallons of coal oil. How many casks, each containing 42.5 gallons, can be filled with it?

69. Three bars of gold contain, respectively, 1.02 lbs., 1.051 lbs., and 1.945 lbs. At \$256.08 per pound, what are they all worth?

70. A man bought 345 tons of hay at \$15.25 per ton, one-third of which he sold at \$18.50 per ton, and the rest at cost. What was the gain?

71. A hall contains 272.636 square feet. It is 6.37 feet wide. How long is it?

72. A wagon wheel is 12.75 feet in circumference. How many times will it turn in going a mile? (Answer to two decimal places.)

73. At 15 mills apiece, how many apples can I buy for $18\frac{3}{4}$ dimes?

74. Two candidates have together 38652 votes. The successful one has 3600 majority. How many votes has each?

75. A boy had $\$6\frac{1}{2}$. He lost 25c, and received $6\frac{1}{2}$ dimes. How much had he then?

76. A wine merchant bought 7 barrels of claret each containing 31.4 gallons, at $\$1.12\frac{1}{2}$ per gallon, and sold it at $\$1.35\frac{1}{2}$ per gallon. Find the gain.

77. A rectangular piece of sheet iron is $15\frac{3}{4}$ inches long, and contains $73\frac{1}{2}$ square inches. How wide is it?

78. Find the cost of 15 drums figs at \$2.25, 9 boxes oranges at \$4.75, 12 boxes lemons at \$5.25, and 4 barrels dried apples at \$6.75.

79. How many mills in 6 twenty-dollar pieces, 15 ten-dollar pieces, 15 silver dollars, $32\frac{1}{2}$ dimes, and 84 five-cent pieces?

80. If $10\frac{1}{2}$ cords wood cost \$68.25, what will be the cost of $60\frac{1}{2}$ cords?

81. How many counters, each an inch square, can be cut out of $5\frac{5}{8}$ square feet of card-board?

82. A tight fence ten feet high is built around a yard which is $30\frac{1}{2}$ yards square. How many square feet of surface in the fence?

83. How many square yards in the walls alone of a room 25 ft. long, 18 ft. wide, and 16 ft. high?

84. How many cubic yards in a square-cornered rock which is $251\frac{1}{2}$ ft. long, 85 ft. wide, and 56 ft. high?

85. How many cubic inches in a box measuring $16\frac{1}{2}$ inches long, $12\frac{1}{6}$ inches wide, and 12 inches deep?

86. Reckoning $7\frac{1}{2}$ gallons to the cubic foot, how many gallons will a tank contain whose measurements are 14 ft. by $9\frac{1}{2}$ ft. by 6 ft.?

87. How many blocks, each one cubic inch, are equal to a block 5 ft. long, 4 ft. wide, and $3\frac{1}{2}$ ft. thick?

88. One field contains 40 square rods, and another one is 40 rods square. How much larger is one than the other?

89. How many fathoms deep is a bay which requires a line 1142 feet long to sound it?

90. What part of an acre is contained in a yard 8 rods long and $6\frac{1}{2}$ rods wide?

91. At $7\frac{3}{4}$ c per cubic foot, what will it cost to build a wall 32 ft. long, $7\frac{1}{2}$ ft. high, and 3 ft. thick?

92. At 5c a pint, what will $4\frac{3}{4}$ casks of wine cost, each containing 42 gallons?

93. At 4c a pennyweight, what will 3 pounds of platina cost?

94. If wheat is worth \$1 $\frac{5}{8}$ per cental, what is the value of a cargo of 2890 tons, of 2240 lbs. each?

95. If a dealer buys Gillott's "303" pens at 95c a gross, and sells them at 1 $\frac{1}{2}$ c apiece, what profit will he make on 80 gross?

96. How many days in 172 years, counting one year in every four as a leap year?

97. How many days from August 7th to November 23d, inclusive?

98. A ship is chartered to take wheat to Liverpool at the rate of 70 $\frac{1}{2}$ shillings per ton. Counting four shillings to the dollar of our currency, what is the freight on a cargo of 2450 tons?

99. At \$1.10 per cental, what is 429614 lbs. of wheat worth?

100. At \$16.25 per ton, what is 5680 lbs. of hay worth?

SECOND GRADE.

1. Bought 820 acres of land at \$47 per acre, and sold 171 acres at \$55 per acre, 273 acres at \$39 per acre, and the remainder at \$75 per acre. How much did I gain by my sales?

2. A man gave away \$45000 in three equal amounts. One share he gave to his son, one to his daughter, and one share he divided equally among his grandchildren, giving them \$1500 apiece. How many grandchildren had he?

3. Cash on hand May 17th, \$256.70. Received during the day, \$5.25, \$6, \$1.50, \$3.35, \$4.85, \$10, 98c, 72c, \$1.80, \$56.10, \$75, \$92.80, and \$157.45. Paid out \$16.50, \$13.50, \$9, \$7, \$1.50, \$1.80, \$3.35, and \$5. How much cash on hand at night?

4. The quotient of one number divided by another is 57, the divisor is 329, and the remainder 287. What is the dividend?

5. A rectangular tract of land contains 486 acres, and is $340\frac{1}{2}$ rods long. How wide is it?

6. How many square yards in a lot which is $137\frac{1}{2}$ ft. long, and 75 ft. wide?

7. How many acres in a field $284\frac{5}{6}$ rods long, and 124 rods wide?

8. A room measures $34\frac{1}{2}$ ft. in length, 26 ft. in width, and 16 ft. in height. How many square feet in the ceiling? In the two end walls? In the two side walls? How many square yards in all?

9. How many square yards in the walls and the ceiling of a hall 120 ft. long, $12\frac{3}{4}$ ft. wide, and 20 ft. high?

10. Find the cost of tinting the walls of a room $22\frac{1}{2}$ ft. long, 18 ft. wide, and $14\frac{1}{2}$ ft. high, at 24c per square yard?

11. How many square feet in the walls and ceiling of a room whose measurements are 24 by $19\frac{1}{2}$ by 12, taking out six windows, each $6\frac{3}{4}$ by 3, and three doors, each 7 by 3?

12. A farmer owes me on account \$487, and he has paid me 7 cords of wood at \$6.50 per cord, 27 tons of hay at \$9 per ton, and 27 bushels of rye at \$1 per bushel. How much remains due to me?

13. Bought a farm of J. B. Smith for \$2500. I have paid him 72 barrels of flour at \$5.25 per barrel, 9 cords of wood at \$4 per cord, 15 tons of hay at \$17 per ton, 42 bushels of wheat at \$2 per bushel, and 62 bushels of beans at \$3 a bushel. How much remains unpaid?

14. Which is of the greater value, a tract of 185 acres of land at \$59 per acre, or 196 head of cattle at \$47 per head?

15. A merchant bought 128 yards of broad-cloth at \$4.50 per yard, and, having lost 22 yards, he sold the remainder at \$5 per yard. Did he gain or lose, and how much?

16. A hogshead of oil, containing 184 gallons, was bought at 78 cents a gallon. One-fourth of it leaked out, and the remainder was sold for 98 cents a gallon. What was the gain or loss?

17. At $8\frac{1}{2}$ cents a pint, how much will 5 casks of alcohol cost, each cask containing 43 gallons?

18. How many minutes from 12 o'clock, noon, of September 25 to the same hour on November 3d?

19. How many days from December 15th, 1881, to July 28th, 1882?

20. How many days from March 21st, 1879, to August 1st, 1880?

21. On looking over my account with Mr. Burton, I find that I have him charged with the following amounts: \$42.50, \$7, \$48.25, \$100, \$1.50, \$1.75, 95c. \$4.42, \$4 80, and \$10. I find on the other hand that I have bought goods of him on credit to the following amounts: \$35.50, \$3.75, \$8, \$9.10, \$27.50, \$127.10, \$55.70. Which of us owes the other, and how much?

22. How many feet around the edge of a field 44 rods long and $32\frac{1}{4}$ rods wide?

23. How many cubic feet in an excavation 88 ft. long, $50\frac{1}{4}$ ft. wide, and 14 ft. deep?

24. How many cubic yards in an excavation 90 ft. long, $52\frac{1}{2}$ ft. wide, and 20 ft. deep?

25. What is the cost of digging a cellar 41 ft. long, 32 ft. wide, and $16\frac{1}{8}$ ft. deep, at 15c a cubic yard?

26. At two and a half pence a gill, what is a cask of wine worth containing 36 gallons? (Answer in pounds.)

27. At $1\frac{3}{5}$ c. per ounce, find the value of 27 lbs. 13 ounces of Epsom salts. (Av. Wt.)

28. What will 14 rods of stone wall cost, at 5 cents a running foot?

29. A farmer has one field containing 25 acres 89 sq. rods, another of 27 acres 110 sq. rods, and a third of 31 acres 56 sq. rods. Find the value of the whole at \$80 per acre.

30. Three ignots of silver weigh 50 lbs. 7 oz. 8 pwt., 52 lbs. 8 oz. 2 pwt., and 49 lbs. 2 oz. 10 pwt. Find the value of the three at 96c. per ounce.

31. A city lot, measuring 75 ft. in length by $22\frac{1}{2}$ ft. in breadth, is worth \$1 per square inch. Find its value.

32. How many times will a wheel 9 feet in circumference turn in going 4 miles?

33. How many cords of wood in a rectangular pile $88\frac{1}{2}$ ft. long, 17 ft. wide, and 8 ft. high?

34. How many cubic inches in a block of marble 4 ft. long, 3 ft. 3 inches wide, and 2 ft. thick?

35. How many square inches of surface has a block of marble whose dimensions are 5 ft. by 3 ft. by $1\frac{1}{2}$ ft.

36. How many square feet of surface has a cube of granite 5 ft. square?

37. How many inches in all the edges of a cube of wood 8 inches square?

38. There are about $7\frac{1}{2}$ gallons to a cubic foot. About how many gallons in a tank whose dimensions are $16\frac{1}{2}$ by 12 by $4\frac{1}{4}$?

39. There are just 231 cubic inches in a gallon. How many gallons will a box contain whose dimensions are 11 ft. by 3 ft. by $2\frac{1}{3}$ ft?

40. From the sum of $\frac{5}{7}$, $1\frac{2}{11}$, $\frac{3}{4}$, $3\frac{1}{4}$, $\frac{1}{2}\frac{3}{2}$, and $\frac{9}{14}$, subtract the sum of $2\frac{1}{3}$ and $1\frac{3}{4}$.

41. What costs $\frac{14}{101}$ of a yard of ribbon at $\$14\frac{3}{4}$ a yard.

42. Find the amount of the following bill: 200 yards of carpet at 98c, 193 yards at 88c, 75 yards at \$1.10, 456 yards at 45c, and 96 yards at 67c.

43. A man hires 72 men at \$1.15 per day, 45 women at 90c per day, and 50 boys at 70c per day. How much will it take to pay them all off for 33 days' work?

44. At $72\frac{1}{5}$ cents per square yard, what will 75 square yards of carpeting cost?

45. Separate 120 into seven sets of factors.

46. Separate 144 into seven sets of factors.

47. Add $6\frac{1}{4}$, $7\frac{1}{3}$, $8\frac{3}{4}$, $9\frac{4}{5}$, $10\frac{5}{6}$, $11\frac{7}{8}$, $12\frac{9}{10}$, and $13\frac{1}{12}$.

48. How many lots, of $240\frac{3}{5}$ square yards each, can be set off from a piece of land containing $1684\frac{1}{5}$ square yards?

49. If $\frac{1}{5}$ of $\frac{8}{9}$ of $\frac{9}{11}$ of $\frac{5}{8}$ of $\frac{3}{7}$ of a piece of property is worth \$300, how much is $\frac{4}{15}$ of $\frac{5}{11}$ of $\frac{2}{3}$ of it worth?

50. Find the cost of $19\frac{3}{7}$ barrels of flour at $\$7\frac{3}{8}$ per barrel, and $16\frac{2}{3}$ boxes of sugar at \$12 a box.

51. The top of a table contains 1231.1109 square inches, and is 24.3 inches wide. How long is it?

52. A field is 40 rods long, and contains 10 acres. How wide is it?

53. What is the value of 15 cwt. 3 qr. 14 lbs. of coffee at \$9.50 per cwt?

54. If $4\frac{3}{4}$ yards of cloth cost $\$14\frac{1}{4}$, what will $17\frac{3}{8}$ yards cost?

55. What quantity of hay can be bought for \$183.75 at \$48.9 per ton?

56. Find the cost of $61\frac{1}{5}$ tons coal at \$5.75 a ton, $49\frac{3}{5}$ tons at \$6.10, $25\frac{1}{3}$ tons at \$7.35, and 7 tons at \$9.50.

57. Bought 45 boards, 14 feet long and 10 inches wide, at \$15 per M. What did they come to?

58. Find the cost of three planks, each 24 feet long, 16 inches wide, and three inches thick, at \$16 per M.

59. What will 20 scantling cost, each 16 feet long, 3 inches wide, and 2 inches thick, at \$15 per M.

60. Find the cost of the following bill of lumber: 36 boards, 12 feet long, 11 inches wide, at \$22.50 per M; 16 planks, $14\frac{1}{2}$ feet long, 10 inches wide and 3 inches thick, at $16\frac{1}{4}$ per M.

61. What must be the width of a board 16 feet long, to contain $14\frac{2}{3}$ feet?

62. Find the cost of 7 pieces of timber, each 27 ft. long and 6 in. by 9 in., at \$17.50 per M.

63. What will it cost to put a tight board fence, 6 ft high, around a field 14 rods square, supposing the lumber to cost 12c per square yard, and the labor and nails to cost \$15?

64. A certain fence is to be 120 feet long, and to be five boards high. There must be 15 posts, of 4 by 4 scantling, and each $6\frac{1}{2}$ feet long. The boards are to be common fencing lumber, six inches wide. How much will the lumber cost at \$14 per thousand?

65. In two years my hens laid 71426 eggs, which I sold at 24 cents a dozen. How much money did I receive for them?

66. If you buy pens at 90 cents a gross, and sell them for 25 cents a dozen, how much will you gain on 12 gross?

67. At \$2.05 per cental, what is 52416 lbs. wheat worth?

68. A ship is loaded with 2316 tons of wheat (tons of 2240 lbs. each). At \$1.99 per cental, what is her cargo worth?

69. At \$11 per M, what are 33217 bricks worth?

70. In a town of 5800 inhabitants, 9 per cent. of the population died of an epidemic. How many people were left?

71. A farmer sold 4350 bushels of grain and had 40 per cent. of his crop left. What was his entire crop.

72. If a man owning 55 per cent. of a factory sells $16\frac{2}{3}$ per cent. of his share for \$4400, what is the value of the entire factory?

73. What is one and one-fourth per cent. of \$425.50?

74. A man owning $\frac{4}{5}$ of a tract of land sold 35 per cent. of his share for \$56000. Find the value of the whole tract.

75. I started in business with \$12500, and at the end of the year found that I had lost \$3000. What per cent. of my capital remained?

76. What per cent. of 293 is 99.62?

77. Bought sugar at \$82 per hogshead, and sold it at a gain of 21 per cent. What price did I get for it?

78. Find the profit or loss per cent. on goods that cost \$1857 and sold for \$2098.41.

79. Find the selling price of a tract of land that cost \$72500 and sold at an advance of $11\frac{1}{5}$ per cent.

80. 60 tons of iron rails were bought at \$57 a ton, and sold at an advance of $17\frac{1}{2}$ per cent. What did they bring?

81. If I sell my house and lot for \$4800, I lose 25 per cent. What was the cost?

82. I sell a fine horse for \$280 and gain $16\frac{2}{3}$ per cent. What was the cost?

83. In a pile of ore containing 356 tons, $12\frac{1}{2}$ per cent. is lead, and one and one-fourth per cent. silver. How many pounds of each metal are there in the whole?

84. A cubic foot of water weighs $62\frac{1}{2}$ lbs. Find the entire weight of the water filling a tank whose dimensions are 16 ft. by $8\frac{1}{4}$ ft. by 4 ft. 6 in.

85. There are about $7\frac{1}{2}$ gallons in a cubic foot. How many gallons in a pond averaging 10 ft. deep, which is 60 ft. long and $32\frac{1}{2}$ ft. wide?

86. Goods that cost \$900 I sell for \$1255. What is the gain per cent.?

87. I sell two lots for \$600 each. On one I make 25 per cent., and on the other I lose 25 per cent. What is my whole loss or gain?

88. My agent sells my wheat for \$1876.75. What is his commission at 2 per cent.?

89. A broker sells 5860 lbs. grain at $1\frac{1}{4}$ c, 972 lbs. at $2\frac{1}{2}$ c, and 6230 lbs. at $1\frac{1}{2}$ c. What will his commission amount to at $1\frac{3}{4}$ per cent.?

90. A house agent collects rents for a year as follows: 75 houses at \$60 per month, 32 at \$45, 15 at \$30, 29 at \$25, and 16 at \$20. What do his commissions amount to at 5 per cent.?

91. On a bill of \$62.50 I am allowed 25 per cent. off for cash, on another of \$110 I get 30 per cent., and on another of \$93.20 I get 15 per cent. How much cash will pay them all?

92. My house is worth \$5000, and is insured for $\frac{3}{4}$ its value, at a premium of four per cent. If it should be burned down, what would be my loss?

93. I insure one house, worth \$3500, for $1\frac{1}{4}$ per cent., another, worth \$2350, for 2 per cent., and a third, worth \$10000, for $1\frac{1}{2}$ per cent. How much do I pay in premiums on all three, supposing them to be insured for their full value?

94. A wheat broker made, in one day, \$142.50 at $\frac{3}{8}$ per cent. commission. What was the amount of his sales?

95. A ship carries 2562 tons of wheat to Liverpool, at $76\frac{1}{2}$ shillings per ton freight. At 24 cents to the shilling, how much does her freight amount to?

96. Find the interest on \$125 at one per cent. a month, from July 2, 1868, to May 30, 1872.

97. On June 6, 1878, I borrowed \$420 at 9 per cent. per annum interest. How much did I owe on December 19, 1880?

98. At 7 per cent., what will \$169.75 earn from August 10, 1880, to May 9, 1882?

99. What is the amount of \$68.25 from May 4 to October 1, at 10 per cent. per year.

100. At $1\frac{1}{2}$ per cent. per month, what will \$1600 amount to from July 17th to the next January 6th?

FIRST GRADE.

1. A country merchant bought 16 bbls. sugar, averaging 210 lbs. each, at $12\frac{1}{4}$ c per pound, and was allowed 5 per cent. discount for cash. How much did he pay?

2. On one bill of \$94.50 I was allowed 4 per cent. off for cash, on another of \$125, 5 per cent., and on a third of \$82.25, only 2 per cent. How much cash did it take to settle all the bills?

3. On March 29th, 1880, I borrowed \$70 at $1\frac{1}{2}$ per cent. per month. How much did I owe on June 5th, 1881?

4. Mr. Gray gave his note on Dec. 11th, 1879, for \$300, bearing interest at 10 per cent. per annum. On May 11th, 1880, he paid \$200. How much did he owe on Oct. 1st, 1881?

5. Find the interest of \$89.96 from June 19th, 1850, to Dec. 9th, 1851, at $8\frac{1}{4}$ per cent.

6. Benjamin Day borrowed \$160 on Dec. 11th, 1853, at 7 per cent. per annum. How much did it take to settle the debt on Sept. 9th, 1854?

7. At what per cent. must \$250 be loaned in order to earn \$28.125 interest in 1 year, 3 months?

8. Mr. A lent \$680 at 4 per cent. per annum till it amounted to \$768.40. How long was it on interest?

9. My capital invested at 6 per cent. has yielded me in four years, 3 months, the sum of \$2422.50 interest. How much have I at interest?

10. A banker lent \$721 for 6 years at 5 per cent. compound interest. What was the amount due at the end of that time?

11. A ship worth \$65000 was insured for its full value at $1\frac{1}{4}$ per cent. Find the premium paid.

12. A factory valued at \$80000 was insured for \$40000 in one office, at $1\frac{1}{2}$ per cent, and in another for \$25000 at $1\frac{3}{4}$ per cent. The factory burnt down. What was the loss to the owners?

13. A real estate broker sold one piece of property for \$5340, and another for \$6000. At $\frac{1}{2}$ of one per cent., what did his commissions amount to?

14. A trader bought 3000 bushels of wheat, at \$1 $12\frac{1}{2}$ per bushel. He paid 5c per bushel for transportation, and then sold it at \$1 $37\frac{1}{2}$. What did he gain per cent.?

15. A certain copper ore will yield 14 per cent. of metal. If the copper is worth 15c a pound, what value will be produced from 7420 tons of the ore?

16. After continuing in business for 4 years, a merchant found that his capital had diminished 32 per cent., and amounted then to only \$34000. How much did he begin business with?

17. If I buy steel pens at 84c per gross, and sell them at 12 for a dime, what per cent. profit do I make?

18. How many days from January 11, 1881, to October 20th of the same year?

19. At 75 cents a day, how much could a boy earn from May 1st to Nov. 28th, inclusive?

20. The father of an industrious family earned \$1.80 per day. Each of his three sons earned \$1 per day, while his two girls were employed at 90c per day each. How much did they all earn in 217 days?

21. A man placed \$250 in the savings bank on the birth of his son. At 6 per cent. simple interest, what did it amount to on his 21st birthday?

22. On December 19th, 1881, the ship "Prince Charlie" cleared from San Francisco for Cork with 40763 centals of wheat. At $11\frac{3}{4}$ c per pound, what was the value of her cargo?

23. At one per cent. interest per day, how much will \$400 amount to from August 7th to the last day of the next January?

24. Cash on hand in the morning, \$725. Received during the day, \$2.50, \$11, 45c, 50c, \$1.45, \$3.20, \$4.50, and \$10. Paid out \$4, \$4.25, \$4.50, \$1, \$2.25, \$6.15, \$1.15, and \$2. Required, cash on hand at night.

25. I find on examining my account with neighbor Jones that I have charged him with the following amounts: \$14.60, \$20, \$32.50, \$11, \$1.75, \$2.25, \$14.40, and \$25. He has done work for me at various times amounting to \$56.60, and has paid me \$12 cash. How does the account stand between us?

26. At $81\frac{1}{2}$ shillings per ton, what does a ship earn which carries 2524 tons of wheat to England, counting the shilling at 25c U. S. money?

27. Three bars of silver weighed as follows: 42 lbs., 11 oz., 10 pwt.; 39 lbs., 1 oz., 10 pwt.; 56 lbs., 9 oz., 25 pwt. At $4\frac{4}{5}$ c per pwt., what is the value of the whole?

28. What is the value of a city lot measuring $67\frac{3}{4}$ ft. by 44 ft., at 5c per square inch?

29. Three drovers hire a pasture for \$1525 for the season. One keeps 75 head of cattle on it for 70 days, another 120 head for 50 days, and the third 100 head for 40 days. How much shall each pay?

30 A merchant owing \$60000 has assets which will yield \$45000 How much will B receive, whose claim amounts to \$786?

31 A fox is 120 rods before a greyhound, and while the fox is running 15 rods the hound runs 21. How far must the hound run before he can catch the fox?

32 If 29 lbs of butter will purchase 40 lbs. of cheese, how many lbs. of butter will buy 320 lbs. of cheese?

33. How many board feet in 27 planks, each 24 feet long, 15 inches wide, and 4 inches thick?

34 How much will 1725 boards cost, each 16 ft long and 6 inches wide, at \$15 per M.

35 I bought goods for \$5250 and sold them at a loss of 21 per cent. What did I receive for them?

36 In what time will \$547.02 amount to \$625.73 at 7 per cent.?

37. A man wills \$5000, \$4000 and \$3000 to his three sons, but the estate yields only \$8460. What is the share of each?

38. At one and a fourth per cent. commission, how much does a broker receive on a sale amounting to \$2600?

39. Find the cost of 36 scantling, 16 ft. long, 3 in. wide and 2 in. thick, 44 planks, 15 ft. long, 16 inches wide, and $3\frac{1}{2}$ inches thick, and 25 boards, 12 ft. long and 15 inches wide, at \$18 per M.

40 How many square yards in the walls and ceiling of a room, 24 ft. long, $15\frac{1}{2}$ ft. wide, and 14 ft. high?

41 If 7 men have provisions sufficient to last them 90 days, in what time will the provisions be consumed if three men are added to the party?

42. At the rate of \$4.20 per cubic inch, what is a bar of mixed gold and silver worth, which is $11\frac{1}{4}$ inches long, $5\frac{1}{2}$ inches wide and 4 inches thick?

43. How many cords are contained in a pile of wood 340 ft. long, 32 ft. wide, and 6 ft. high?

44. At $62\frac{1}{2}$ lbs. to the cubic foot, what will be the weight of a column of water 3 ft. square and 120 ft. high?

45. Counting $7\frac{1}{2}$ gallons to the cubic foot, find the approximate number of gallons in a pond averaging 32 ft. long, $18\frac{1}{2}$ ft. wide, and 7 ft. deep.

46. Find the cost of three loads of hay, weighing 1896 lbs., 2145 lbs., and 1984 lbs., at \$16 per ton.

47. In 6 tons, 2 cwt., 20 lbs., how many barrels of sugar are there, each containing 2 cwt. 35 lbs.?

48. What is the weight or pressure, in tons, on a square yard, where the sea is 50 fathoms deep, counting the weight of a cubic foot of sea water at 64.04 lbs.?

49. Find the cost of painting the walls and ceiling of a room 32 by 24 and $18\frac{1}{2}$ ft. high, at 27c per square yard.

50. How many square inches of surface has a block of granite which is $5\frac{1}{2}$ ft. long, 4 ft. 3 inches wide, and 3 ft. thick?

51. Find the balance in the following account: Debits, \$12.56, \$14.92, \$27.14, \$110.94, \$92.11, \$83.88, \$7.46, \$4.39, \$71.18, \$14.43, \$1.94; credits, \$3.43, \$2.11, \$5.27, \$15.60, \$108.29, \$84.12, and \$27.12.

52. Find the balance in the following account: Debits, \$821.75, \$321.50, \$110, \$5.70, \$19641, \$347.09, \$56.50, \$900; credits, \$700, \$257.96, \$332.49, and \$629.10.

53. How many yards long must a lot be which contains $7249\frac{1}{4}$ square yards, and is 432 ft. wide?

54. Find the cost of digging a cellar 50 ft. long, 32 ft. wide, and 10 ft. 3 inches deep, at 36c per cubic yard.

55. If a man's income is $7\frac{1}{4}$ c per minute, and he spends \$850 in a month of 30 days, how much will he save in that time?

56. From a cask containing $60\frac{2}{3}$ gallons of cider, $17\frac{1}{3}$ gallons were drawn off, and the remainder sold at 26c per gallon. How much did it bring?

57. From the sum of $\frac{4}{5}$, $\frac{7}{10}$, $\frac{3}{5}$, $2\frac{7}{8}$, $1\frac{1}{4}$, $\frac{3}{4}$, $1\frac{1}{3}$, and 4, subtract the sum of $1\frac{1}{5}$, $1\frac{5}{6}$, $1\frac{3}{10}$, $1\frac{7}{8}$, $2\frac{1}{4}$, and $2\frac{1}{2}$.

58. At $\frac{4}{5}$ of $\frac{1}{3}$ of a dollar a yard, how many yards of ribbon can be bought for $\frac{2}{3}$ of $\frac{7}{8}$ of \$3?

59. From a tract of land containing $8906\frac{1}{6}$ acres, how many farms, of $125\frac{7}{8}$ acres, can be set off?

60. How much will it cost to build a fence around a field $55\frac{2}{3}$ rods long and 27 rods wide, at \$1.05 per rod?

61. How deep must a box be to contain 6 gallons, if it is 17 inches long and 12 inches wide?

62. A square mining claim contains an acre. Find the length of each side in feet.

63. A town hall is 130 ft. by 72 ft. How many persons can it accommodate, allowing $\frac{2}{3}$ of a square yard to each person?

64. If an army of 55225 men be drawn up in the form of a square, how many men will there be on a side?

65. How many rods of fence will it take to enclose 40 acres of land in the form of a square?

66. A line attached to the top of a liberty-pole is 220 feet long, and will reach to a point on the ground 80 feet from the bottom of the pole. How high is the pole?

67. Find the diagonal of a room which is 36 ft. long and 24 ft. wide.

68. The difference between $\frac{6}{7}$ and $\frac{7}{8}$ of my money is \$20. How much have I?

69. A load of limestone, weighing 1825 lbs., cost \$1.46. How much was that per ton?

70. How many square feet in a triangular yard whose sides are 40, 30, and 20 feet?

71. How many acres in a triangular field whose sides are 72, 64, and 50 rods?

72. A circular field contains 9 acres. What is its diameter in yards?

73. What will it cost to enclose a circular yard, 82 feet in diameter, at 25c per running foot?

74. Over what part of an acre can a horse graze which is fastened to the pasture fence by a rope 100 feet long?

75. How many square inches in a circle 7 inches in diameter?

76. What diameter must a circle be to contain 62 square inches of surface?

77. Find the diameter of a circular island containing 5 square miles.

78. Find the difference in area between a rectangular field $54\frac{2}{3}$ rods by 27 rods, and a triangular field whose sides are 60, 50, and 40 rods.

79. At 42c a gallon, what is the value of the wine in a vat 11 feet long, $7\frac{1}{2}$ feet wide, and 4 feet deep?

80. With how long a rope must a horse be tied to a stake, to allow him to graze over $\frac{1}{2}$ an acre?

81. What part of a day is 5 h. 24 m. 30 sec.?

82. A real estate agent has collected rents during the year as follows: 13 houses at \$60 per month, 25 houses at \$55, 23 at \$32, 24 at \$30, and 16 at \$25. What do his commissions amount to, at 5 per cent. for all rents under \$35 per month, and 3 per cent. for all above that figure?

83. John and Henry have together 420 marbles, and John has 36 more than Henry. How many has each?

84. If $2\frac{1}{2}$ yards, $1\frac{3}{5}$ yards wide, cost \$3.60, what will be the cost of $38\frac{1}{2}$ yards, $1\frac{1}{4}$ yards wide?

85. A child was born on February 27th, 1880. How many days old was it on the 16th of the following October?

86. A young man lost at play \$1470, which was $16\frac{2}{3}$ per cent. of $66\frac{2}{3}$ per cent. of $87\frac{1}{2}$ per cent. of his money. How much had he left?

87. Four per cent. of five per cent. of six per cent. of \$10000 is what part of \$96?

88. At 6 per cent. compound interest, what is the amount of \$500 for 5 years, 6 months?

89. An open court contains 1600 square yards. How many stones, 18 inches square, will be required to pave it?

90. A man received \$66.50 interest on a sum of money loaned 5 years previous at 14 per cent. per annum. What sum was loaned?

91. If the ridge of a building is 12 feet above the beams, and the building is 40 feet wide, how long must the rafters be?

92. Three men invest \$52950 in a factory, in the proportion of 4, 5, and 6. What is each man's capital?

93. How many planks, 15 feet long and 15 inches wide, will floor a barn 60 ft. long, and 31 ft., 3 in. wide?

94. What is the exact interest of \$730 from July 4th to December 25th, at 6 per cent. per annum?

95. I borrowed \$375 of a bank on the 15th of August, at one and a half per cent. per month. On December 1st, I paid \$100, and on January 15th, \$100 more. How much was owing on March 1st, following?

96. At £5, 14s, 7d a head, what will 65 horses come to?

97. From the sum of five and 36 millionths, 2 and 249 thousandths, 14 ten thousandths, 1862 ten millionths, and 2 tenths, subtract 3 and 8889 millionths. Divide the answer by 1.32.

98. A rectangular piece of land is $366\frac{2}{3}$ yards long and $303\frac{1}{3}$ yards wide. Into how many lots can it be divided, each 100 ft. by 25 ft.?

99. A grocer sold 10 per cent. of his stock of sugar, and then 10 per cent. of what was left. 60 cwt., 75 lbs. remained. What was his original stock?

100. Find the cost of $984\frac{2}{5}$ lbs. of coffee at 45c, $324\frac{3}{4}$ lbs. of tea at 60c, $817\frac{5}{7}$ lbs. of indigo at 28c, 108 lbs. sugar at $12\frac{1}{4}$ c, and 88 lbs. chocolate at $25\frac{1}{4}$ c.

SUPPLEMENTARY EXAMPLES.

1. A square piece of land contains $1644\frac{1}{4}\frac{2}{6}\frac{9}{0}$ acres. How many rods square is it, and how much will it cost to fence it at \$1.05 per rod?

2. A square court-yard contains 191844 square feet. How many feet square is it?

3. What must be the length of a ladder to reach the top of a wall 35 feet high, the foot of the ladder being 12 feet from the wall?

4. Find the diagonal of a room 40 feet long and 24 feet wide.

5. There are 2 pastures, one of which contains 248 acres, and the area of the other, which is in a square form, is to this as 5 to 4. How many rods square is the other?

6. A certain room is 26 feet long, 20 feet wide, and 14 feet high. How many feet is it from one of the lower corners to an opposite upper corner? (Square each dimension, add the squares, and extract the square root of the sum.)

7. From a mass of silver weighing 25 lbs., a goldsmith made 4 doz. spoons weighing 6 lbs. 9 oz. 11 pwt. 11 gr.; 3 sugar bowls weighing 4 lbs. 8 oz. 12 pwt. 17 gr.; 6 cups weighing 8 lbs. 10 oz. 17 pwt. 16 gr. How much unwrought silver remains?

8. From 17 tons of coal there were sold 9 tons, 5 cwt. 17 lbs. How much remained?

9. If a man travel 13 miles 28 rods in one day, how far will he travel in $19\frac{1}{2}$ days at the same rate?

10. At $1\frac{1}{2}$ per cent. per month, how much will \$175 amount to from April 17, 1878, to Feb. 27, 1881?

11. Jas. Drayton borrowed \$200 of Peter Thrifty, on June 9, 1875, at $1\frac{1}{4}$ per cent. per month. On Dec. 15, 1880, suit was brought to recover the amount of the note. What was due at that time?

12. Find the amount of \$320 from Dec. 11, 1873, to Sept. 9, 1876, at $8\frac{1}{2}$ per cent. per annum.

13. For the use of \$850 for 1 year, 7 months, 18 days, I received \$97.18. What was the rate?

14. A man borrowed \$365.50 on Jan. 1, 1878, at 15 per cent. per year. He made the following payments: June 10, 1878, \$50; Dec. 8, 1878, \$30; Sept. 26, 1879, \$60. What was due on July 4, 1880?

15. How long will it take \$500 to produce \$120 interest, at 1 per cent. a month?

16. In what time will \$280 produce \$131.195, at $7\frac{1}{4}$ per cent.?

17. John Bray sells me a horse worth \$150, on the condition that I will lend him the value of the horse, at 8 per cent., till its interest equals his price. How long shall he keep the money?

18. On \$430.28, \$149.63 interest was paid for 5 years, 4 months, 6 days. What was the rate?

19. How many posts 8 feet apart will be required to build 16 miles of fence?

20. What will the lumber cost to build a five-board fence across a yard 104 feet wide, the boards to be 6 inches wide, and the posts eight feet apart, to be of 4x3 scantling and 6 feet long, both boards and posts to be \$16 per M?

21. Find the cost of a tight board fence around a lot 128 feet long and 32 feet wide, the fence to be 7 feet high, and the posts 8 feet apart, to be 4x4 scantling and 9 feet long; all the lumber costing \$18 per M, and the nails and labor estimated at \$15.

22. Find the cost of 26 planks, 24 feet long, 15 inches wide and $3\frac{1}{2}$ inches thick, at \$22 per M.

23. What is the difference between the simple and the compound interest of \$1600 for 2 years, 8 months, at 9 per cent.?

24. If on a lot sold at \$1200 I gained 20 per cent. profit, what would I have gained had I sold it at \$1125?

25. Subtract $5\frac{1}{8}$ from 8.75, and divide the difference by $6\frac{3}{8}$, diminished by 2.25.

26. I bought a house for \$900, payable in 3 years, without interest, and sold it the same day for \$900 cash. Supposing money to be worth 8 per cent. per annum, what profit did I make?

27. A broker exchanged \$10250 of Indiana bank notes, at $\frac{1}{2}$ of 1 per cent. ; what was the amount of his brokerage?

28. I bought 8 per cent. city bonds at \$96 a share (par value \$100). What interest do I make on my money?

29. The longitude of Boston is $71^{\circ} 3'$, and of Chicago is $87^{\circ} 30'$; what is the difference of time between these two places?

30. If a globe of gold 1 inch in diameter is worth \$128, what is the value of a globe $3\frac{1}{2}$ inches in diameter.

31. If I buy a lot of goods for \$530, on 9 months' credit without interest, how much cash must I get for them to gain 12 per cent., if money is worth 8 per cent. interest per annum?

32. How many bricks are there in a pile 20 feet long, 10 feet high, and 8 feet thick, the bricks to be $8 \times 4 \times 2$ inches?

33. How many tiles 7 inches square will it take to cover a floor 28 feet 7 inches square?

34. A merchant sold a piece of cloth for \$48, and thereby lost 25 per cent.; what would he have gained had he sold it for \$68.

35. A merchant bought some goods for \$256.50, and, having kept them on hand 6 months, and having paid \$26.86 storage, he sold them at a net gain of 16 per cent. What did he get for them, supposing money to be worth 9 per cent. per annum?

36. If a staff 8 feet long cast a shadow of $11\frac{1}{5}$ feet, what is the height of a tree whose shadow is 140 feet?

37. Borrowed of Philip Barton, \$300 for 6 weeks, and afterwards lent him \$210. How long shall he keep it to compensate him for the use of the money he lent me?

38. How many yards of paper 30 inches wide will it take to cover the walls of a room $45\frac{1}{2}$ feet long, $21\frac{1}{4}$ feet wide, and 14 feet high?

39. At 18c. a square yard, how much will it cost to plaster the walls and ceiling of the above room?

40. At \$2 per cubic inch, what is a sphere of mixed silver and lead worth, which is 7 inches in diameter? (The volume of a sphere = the cube of the diameter \times .5236.)

41. If $\frac{6}{11}$ of a yard of cloth cost \$5, how much will \$8.75 buy?

42. How many cubic miles in a sphere which is 50 miles in diameter.

43. What is the entire surface of a block of granite which is $6\frac{1}{4}$ feet long, 4 feet wide, and $2\frac{3}{4}$ feet high?

44. Find the entire surface, including the ends, of a solid cylinder, whose length is 8 feet, and circumference 3 feet.

45. What is the surface of a sphere whose diameter is 10 inches? (The surface of a sphere = diameter \times circumference, or the square of the diameter \times 3.1416.)

46. A gentleman bequeathed $\frac{1}{3}$ of his property to his wife, $\frac{1}{4}$ of the remainder to his son, and $\frac{1}{12}$ of the residue to his brother, who received \$1200. How much was the entire estate worth?

47. How many yards of cloth, at \$2 per yard, must be given for 5 tons, 15 cwt., 74 lbs. of sugar, at \$9 per cwt?

48. What time of the day is it when $\frac{1}{4}$ of the time past noon equals $\frac{1}{11}$ of the time to midnight?

49. In one day rain fell in a certain county to the depth of 1 inch; how many hogsheads of water fell on a farm of 140 acres?

50. Estimating the velocity of sound at 1120 feet per second for ordinary temperatures, how many miles away was a gun, when a difference of $9\frac{3}{4}$ seconds was observed between the flash and the report?

51. A certain man was born on May 28, 1828, at noon. How many hours old was he at 4 P. M., on Dec. 4, 1881?

52. From a small field containing 4 acres, 2 roods, 28 poles, 200 square feet, there was taken 1 acre, 1 rood, 35 poles, 108 square feet; what quantity remained?

53. What part of $\$4$ is $\$5$?

54. I sold my horse for \$68.75, which was 40 per cent. less than his value. What was he worth?

55. Allowing each vine 64 square feet of ground, how many vines can be planted on 32 acres?

56. What is the length, in rods, of a diagonal path across a square field containing 6 acres?

57. How large a stick of square timber can be made from a log 32 inches in diameter? (Square the diameter, divide by 2, and extract the square root.)

58. I have a note of \$3180, due in 8 months, without interest. If money is worth 9 per cent., what is the cash value of the note?

59. How many bricks, 4 inches by eight, will pave a walk 36 feet long and $4\frac{2}{3}$ feet wide?

60. How many cords of wood can be piled upon $\frac{1}{16}$ of an acre, the height not to exceed 10 feet?

61. How many tons weight must a tank sustain which measures 24 feet long, 15 feet wide, and 6 feet deep, when filled with salt water, whose estimated weight is $64\frac{1}{3}$ lbs. to the cubic foot?

62. Mr. C. sold goods for \$2625, at a loss of $12\frac{1}{2}$ per cent. How much should he have got for them to gain the same per cent.?

63. A coal dealer buys 325 long tons (2240) lbs. of coal, at \$4.50 per ton; and after paying \$326 freight and charges, sold it at \$8 per ton of 2000 lbs. What was his whole gain?

64. If I buy a lot for \$375 and sell it for \$500, what is my gain, per cent.?

65. If a laborer can remove $17\frac{1}{2}$ cubic feet of earth per hour, what will it cost to dig a cellar 35 feet long, 27 feet wide, and 12 feet deep, if the wages are \$2 per day of 9 hours?

66. What is the length of a rope extending from the top of a steeple, 125 feet high, to a point on the ground, 100 feet from the center of the base of the steeple?

67. A cubic foot of iron weighs 7800 avoirdupois ounces. Find the weight of 100 miles of telegraph wire $\frac{1}{8}$ inch in diameter. (The square of the diameter $\times .7854 \times$ the length = the cubic contents.)

68. Find the cost of 74 large plate-glass windows, each $5\frac{1}{2}$ by 8, at \$2.25 per square foot.

69. What is the diameter of a hollow sphere which contains 5 gallons of water? (The cube of the diam. $\times .5236 =$ volume.)

70. What is the volume of a pyramid whose altitude is 27 inches, and whose base is 56 square inches? (The area of the base $\times \frac{1}{3}$ the altitude = the volume of a pyramid or a cone.)

71. Mr. Strong borrowed of me, on July 1st, 1875, \$325 at 1 per cent. per month. He agreed to pay me \$50 on the first of every month till it was paid. When did he make his last payment, and what was it?

72. A student made a resolution, and kept it, to rise an hour and a quarter earlier than had been

his custom, and spend the time in study. How much time did he gain during three common years?

73. A rectangular lot, twice as long as it is broad, contains half an acre; how long is it? (Half the area is the square of the width.)

74. A rectangle, whose length is to its breadth as 5 to 4, contains 4500 square feet. Find its length and its width. (Four-fifths the rectangle = the square of the width.)

75. How many rods of fence will enclose .5 acres in a square form?

76. How much water in a circular pond 80 feet in diameter and 7 feet deep, estimating $7\frac{1}{2}$ gallons to the cubic foot? (The square of the diam. $\times .7854 \times$ the depth = the cubic contents.)

77. What is the cost of 72 boards 24 feet long, 15 inches wide at one end, and 17 inches at the other, and two inches thick, at \$19.50 per M? (Take the *average* width.)

78. If an advoirdupois pound weighs 7000 Troy grains, what will 14 Troy pounds of gold weigh on a grocer's scales?

79. I bought a house and lot for \$4000. If I pay yearly \$36 for water, \$97.00 for taxes, and \$75 for repairs, what must I rent it for to make 8 per cent. on my money?

80. What is the depth of a cubical box that contains 54872 cubic inches?

81. A cubical mass of rock contains 41063625 cubic yards. How many feet high is it?

82. How many gallons of water will a cubical box hold which is $9\frac{1}{2}$ feet square?

83. How thick must a block of granite be to contain 165 cubic feet, if it is $8\frac{1}{2}$ feet long and 6 feet wide?

84. If I own $\frac{1}{16}$ of a ship, worth \$24000, what will be the value of what I have left after selling $\frac{1}{3}$ of $\frac{3}{5}$ of my share?

85. A railroad has $\frac{5}{8}$ of an acre covered with wood 10 feet high. How many cords are there?

86. The entire surface of a cubical block is 1536 inches. Find the length of a diagonal of one of its faces.

87. How many square feet of sheet iron in 42 lengths of stove pipe, each 2 feet long and 7 inches in diameter? (In finding the circumference take the nearest whole number.)

88. If a circular plate of silver 3 inches in diameter is worth \$5.85, what is the value of a similar plate, of the same thickness, 8 inches in diameter? (Cylinders of equal thickness are to each other as the squares of their diameters.)

89. If a pipe $\frac{3}{4}$ of an inch in diameter will discharge 9000 gallons in a day, how much will a pipe discharge whose diameter is 2 inches, both pipes having the same head of water?

90. There are two similar rectangular fields, the smaller of which contains 35 acres. The width of this one is to the width of the other as 5 to 7. How many acres does the second contain?

91. How much more water will be contained in a circular pond of 83 feet diameter than in one of $13\frac{5}{6}$ feet diameter, both ponds having uniform and equal depth? (See Ex. 88.)

92. Brown, Mead and Little enter into a speculation in which they make a profit of \$875. Brown had \$800 in the concern for 9 months, Mead had \$550 in for 10 months, and Little had \$600 in for 8 months. How should the profit be shared?

93. From a farm of 256 acres, 86 square rods, was sold a field containing 236 acres, 74 square rods. What fraction of the farm remained?

94. A commission merchant sold for a granger 47000 lbs. wheat at $\$1.48\frac{1}{2}$ per cental, 25000 lbs. barley at $\$1.09$ per cental. He paid $\$87.50$ freight and charges, and expended, according to order, $\$459$ for farm supplies. Allowing him 4 per cent. commission on receipts and disbursements, how much money shall he remit to the farmer?

95. Truworthy & Co. allow me 20 per cent. reduction from their usual rates, and 5 per cent. off for cash. How much must I pay for goods invoiced at $\$788.20$? (Deduct the 20 per cent. first, and the 5 per cent. afterwards.)

96. If a metallic ball 1 inch in diameter weighs $\frac{3}{14}$ of a pound, how much will a ball of the same metal 7 inches in diameter weigh?

97. What must be the average depth of a circular pond of 50 feet diameter, to contain 150000 gallons of water? (Count $7\frac{1}{2}$ gallons to the cubic foot.)

98. Counting the weight of a cubic foot of fresh water at $62\frac{1}{2}$ lbs., what is the pressure, in tons, on $\frac{1}{8}$ of an acre at the bottom of Lake Superior, where the water has a depth of 150 fathoms?

99. At 24 cents to the shilling, how much must I pay for a draft on Liverpool for 75 pounds 11 shillings and 6 pence?

100. At $18\frac{9}{10}$ cents to the franc, how large a draft on Paris can I buy for $\$600$?

101. H. P. Barton buys a bill of goods amounting to $\$187.50$, of a wholesale dealer, which he gets at 20 per cent. discount, and 3 per cent. off for cash. How much does it require to settle the bill?

102. If a steamboat sailed $127\frac{1}{2}$ miles in $7\frac{1}{2}$ hours, how far did she sail in 25 minutes?

103. If $\frac{3}{5}$ of an acre of land cost \$17 $\frac{2}{5}$, what will $\frac{7}{8}$ of an acre cost?

104. $\frac{3}{8}$ of A's money is equal to $\frac{2}{9}$ of B's, and the difference of their money is \$33. How much has each?

105. The ages of A, B, and C are to each other as 6, 8, and 10, and their sum is 136 years. Required their ages.

106. Bought of A. L. Bancroft & Co. goods to the amount of \$235.20. I am allowed 22 per cent. discount as a retail dealer, and a further discount of $2\frac{1}{2}$ per cent. for cash. How much cash will pay my bill?

107. A pair of horses is sold for \$780; one of them is worth $\frac{6}{7}$ as much as the other. What is the value of each?

108. A man starts on a journey at the rate of 4 miles an hour. Seven hours afterward another man starts after him, at the rate of $4\frac{1}{2}$ miles an hour. In how many hours will he overtake him?

109. How many yards of lining, $\frac{3}{8}$ of a yard wide, will it take to line $5\frac{1}{4}$ yards of cloth $1\frac{3}{8}$ yards wide?

110. A man agreed to work for \$2 a day and his board, paying 60c. a day for his board when he was idle. At the end of 30 days he received \$34. How many days did he work?

111. I am 54 years of age, and my son is 25. In how many years will he be half my age? (The difference between my son's age and half my age is now 2 years, and this difference diminishes half a year each year.)

112. The agent of a wealthy landowner reports that he has sold 560 acres at \$25.50; 346 acres at

\$32; 527 acres at \$40; 400 acres at \$4.50, and 62 acres at \$85. He has paid for taxes \$859.75, and for other expenses, as surveying, transportation, etc., \$516.25. At $2\frac{1}{2}$ per cent. for receipts and disbursements, how much do his commissions amount to?

113. A bankrupt has liabilities amounting to \$15678, and his assets are \$5200. How much will Graham & Co. receive, to whom he owes \$3900?

114. Elmore & Co. failed, owing \$27000, and having only \$9000 assets. How much will a money lender receive who holds their note for \$6200?

115. How long will it take a sum of money to double itself at 8 per cent., simple interest, per year?

116. I lend \$700 at $1\frac{1}{4}$ per cent. per month. How long will it be before I shall have enough from this investment to enable me to purchase a lot worth \$936.25?

117. On the 11th of January, 1871, a man borrowed \$5600 at 8 per cent. interest. On May 11, he paid \$1500; on September 26, \$2200; and on January 1, 1872, \$1300? What was due on June 1st?

118. I bought 27 M feet of boards at \$12.20 per M, and sold $\frac{1}{2}$ of them for what $\frac{2}{3}$ of the whole cost. What amount and what per cent. did I gain on the part sold?

119. A broker collects rents during the year as follows: 42 houses, at \$20 per month.

16	"	"	$25\frac{1}{2}$	"
18	"	"	30	"
24	"	"	36	"
12	"	"	$37\frac{1}{2}$	"
11	"	"	40	"
12	"	"	$42\frac{1}{2}$	"
8	"	"	50	"
8	"	"	$55\frac{1}{2}$	"

At 3 per cent. for all rents of \$40 or over, and 5 per cent. for all under that figure, how much did his commission amount to ?

120. Find the cost of 16 M shingles at \$2.50, 5296 feet of boards, at \$18 per M, 400 feet of scantling, at \$20, and 1525 feet of planks at \$22.

121. How many board feet in 27 boards 12 feet long, $1\frac{1}{2}$ inches thick, and 16 inches wide ?

122. How much will 42 planks cost 18 feet long, 15 inches wide and $3\frac{1}{2}$ inches thick, at \$39 per M. ?

123. A cylindrical piece of timber is 24 feet long, and 18 inches in diameter. What will it cost at 20 cents a cubic foot ?

124. How many square feet in the surface of a sphere 2 yards in diameter ?

125. What principal will yield \$91.57 $\frac{1}{2}$ interest every quarter, at 9 per cent. ?

126. A house is insured for $\frac{3}{4}$ its value, the rate being $1\frac{1}{2}$ per cent., and the premium \$202.50. What is the value of the house ?

127. I have a rectangular board 10 feet 8 inches long and 2 feet 8 inches wide. How large a square table-top can be made of it, making no allowance for loss by sawing ?

128. What would it cost to inclose a square lot containing 16 acres, with a fence costing \$3.50 per rod ?

129. If a square orchard contains 2916 trees, how many are in a row on each side ?

130. There are three piles of 4-foot wood ; one 56 feet long and 5 feet high : another 64 feet long and $6\frac{1}{2}$ feet high, and the other 75 feet long and 6 feet high. At \$6.40 per cord, what is it worth ?

131. I have a cylindrical pond 30 feet in diameter and 5 feet deep. How many gallons shall I

increase its capacity if I increase its depth 1 foot? (Count $7\frac{1}{2}$ gallons to the cubic foot.)

132. How many per cent. will the capacity of a rectangular bin be increased by increasing its length and its breadth 10 per cent.?

133. How many square yards are there in the walls and ceiling of a room whose dimensions are 32 feet long, 24 feet wide, and $81\frac{1}{2}$ feet high?

134. How many minutes were there in the month of February, 1882?

135. How many days are there from June 29th to October 17th?

136. A lady bought 8 silver spoons, each weighing 3 oz., 3 pwt., 6 gr., at \$2.10 per ounce, and a gold chain weighing 15 pwt., at \$1.32 a pwt. Find the cost.

137. At \$4 a rod, what will be the expense of fencing 12 acres of land in the form of a circle?

138. How many board feet can be sawed from a log 24 feet long and 28 inches in diameter? [Doyle's Rule.—From the diameter in inches, subtract 4; the square of the remainder will be the number of square feet of inch boards yielded by a log 16 feet long.]

139. How many board feet can be sawed from 3 logs each 32 feet long, and measuring respectively 42, 43 and 48 inches in diameter?

140. At 3 cents per cubic foot, what does a stick of timber cost 16 inches square and 60 feet long?

141. How many revolutions does the six-foot driving-wheel of an engine make in a minute, if running at the rate of 30 miles an hour?

142. The specific gravity of cast iron being 7.25, what is the weight of a ten-inch cast iron cannon ball? [A cubic foot of water weighs 1 M oz., or $62\frac{1}{2}$ lbs. av.]

143. If a 2 inch pipe will fill a cistern in 6 hours, how long will it take, under the same pressure, for a 3 inch pipe to fill it? [Under the same circumstances, the quantity of water delivered by pipes of different sizes varies as the square of the diameters.]

144. How far is it around a field containing 80 acres, and twice as long as it is wide?

145. Calling the diameter of the earth 7912 miles, and the height of the highest mountain in the world 29000 feet, what elevation would represent the mountain on an artificial globe of 2 feet diameter?

146. How much must I invest in U. S. 4 per cent. bonds at 110, to give me \$500 yearly income?

147. What are the cubic contents of a cone whose base is 5 feet in diameter, and whose height is 12 feet?

148. What sum of money will in 3 yrs. 10 mos. 9 days, at 7 per cent., amount to \$1524.10?

149. In what time will \$1800 at 7 per cent. amount to \$2286.15?

150. A man was hired for 80 days, on the condition that for every day he worked he should receive \$1.44, and for every day he was idle he should pay 48 cents for his board. He received \$96 at the expiration of the time. How many days was he idle?

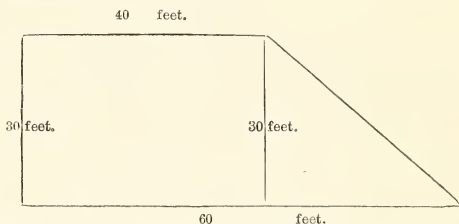
151. A coal dealer finds, upon consulting his books, that he has purchased during the year 4000 long tons (2240 lbs.) of coal, at an average price of \$6 per ton, and sold the same at \$8 per short ton. How much profit has he made?

152. A printer sets type for six weeks as follows: the first week 37,000 ems; the second week 42,000 ems; the third week 43,000 ems; the fourth

week 58,000 ems ; the fifth, 54,000 ; and the sixth, 52,000, at 40c per 1,000 ems : what did he earn in that time ?

153. At one per cent. per day, what will be the interest of \$1525, from January 12th, 1880, to the next October 3d ?

154. I have a floor of the following shape and dimensions :



How many yards of carpeting, one yard wide, will it require to cover the floor ?

155. A man purchased wheat at \$2.15 per cental, and sold the same at a profit of 20 per cent., making \$86 by the transaction. How many centals did he buy ?

156. I bought a bale of cloth for \$140 $\frac{4}{5}$, and disposed of it for $\frac{9}{11}$ of its cost, losing 64c. per yard. How many yards were in the bale ?

157. When it is 9 o'clock A. M., at a place whose longitude is 95° 36' east, what is the time at a place whose longitude is 94° 27' west ?

158. A man has a garden which is 14 rods long, and 12 rods wide. He wishes to have a ditch dug around it that shall be 3 feet wide, and 4 $\frac{1}{2}$ feet deep. At 18c. a cubic yard, what will it cost ? (The area of the ditch is taken from that of the garden. Make a diagram.)

159. How much more annual income may be derived from \$20000 invested in 5 per cent. stock bought at 20 per cent. discount, than by loaning the same sum at 6 per cent. interest?

160. How long must \$750 be on interest at 8 per cent., to amount to \$956.50.

161. In 4 fields I have $87\frac{3}{5}$ acres. The first one contains $18\frac{5}{6}$ acres; the second $25\frac{7}{8}$, and the third $16\frac{1}{2}$. How many acres in the fourth field?

162. What must be the length of a side of a cubical box which contains 103,823 cubic inches?

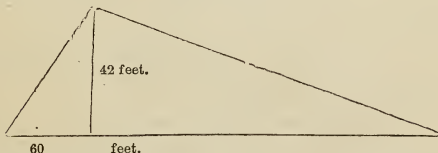
163. Allowing 30 square yards for openings, what will it cost to paint the walls and ceiling of a hall 84 feet long, $7\frac{1}{2}$ feet wide, and 15 feet high, at 17 cents per square yard?

164. I wish to cut two rafters of equal length, to stand at an angle of 45 degrees over a house 26 feet wide. How long shall I cut them?

165. How much must I pay down for a library invoiced at \$400, at 20 per cent. discount, and 5 per cent. off for cash?

166. A gentleman having a circular fishpond of uniform depth and 51 feet in diameter, wishes to construct a new one of the same depth and of four times the capacity. Of what diameter must he make it?

167. A triangular yard has the following dimensions:



How much will it cost to pave it with marble at \$2.25 per square yard?

168. The sides of a triangular field measure 78, 82, and 96 rods respectively. Find its value at \$32 per acre.

169. From a piece of cloth containing $11\frac{2}{3}$ yards, I sold $5\frac{3}{5}$ yards. What decimal of the whole piece remained?

170. What rate of interest does a capitalist realize who buys U. S. $4\frac{1}{2}$ per cent. bonds at 116 $\frac{1}{2}$?

171. How many reams of paper will be required for an edition of 5000 volumes of 312 pages, if 1000 volumes of 240 pages of the same size require 10,000 sheets?

172. What is the length of a lawn which contains 305 square yards, and is 45 feet wide?

173. How wide must a walk be, extending around a garden 120 feet square, to occupy one fourth of the ground? (Make a diagram.)

174. Find the dimensions of a board containing $12\frac{4}{9}$ square feet, and whose length is seven times its breadth. (One seventh of the area is the square of the width.)

175. If a pipe one inch and a half in diameter will discharge 18 hogsheads of water in a certain time, what must be the diameter of a pipe having the same head of water, to discharge 450 hogsheads in the same time?

176. What is the edge of a cube whose entire surface is 5,400 square inches, and what is its volume?

177. If a mass of copper, containing two cubic feet, were formed into a bar half an inch square, what would be its length?

178. If the same mass of copper were drawn into a rod of half an inch diameter, what would be the length of the rod?

179. A certain warehouse measured 92 feet by 65 feet. The walls were 18 feet high and averaged 18 inches thick. There were two doorways, each 12 feet by 10, and eight windows, each $3\frac{1}{2}$ by 5. Find the exact number of cubic feet in the walls, exclusive of the openings. (Make a diagram.)

180. How many square inches of gold leaf will cover a hemispherical surface whose diameter is $3\frac{1}{3}$ feet?

181. A wholesale merchant sells to a retailer at 12 per cent. profit, and he, in his turn, charges his customer 25 per cent. profit. What part of the last price is the original cost of the goods?

182. The surface of a lot containing $\frac{5}{12}$ of an acre was raised 16 inches at 54 cents per cubic yard of earth. Find the cost.

183. A rectangular box contains 65,910 cubic inches, and its length, breadth and depth are to each other as 5, 3, and 2. Find the dimensions.

184. A gentleman had three daughters, whose ages were respectively 16, 24, and 32 years. He divided \$8100 among them in the same proportion as their ages. Find the share of each.

185. At 27 cents per cubic yard, what will it cost to excavate the earth for a conical pond of 80 feet diameter and 15 feet depth?

186. How many cubic inches of iron are there in a bombshell one foot in diameter, and whose shell is one inch thick?

187. A miller has grains worth respectively 42, 46, 52, and 60 cents per bushel. If he mixes 12 bushels of each, and charges 25 per cent. profit for grinding it into feed, at what price per bushel must he sell the mixture?

188. How many square feet of 2-inch plank will it take to make a box whose outside dimensions are 8, 4, and 2 feet?

189. If my lot were 15 feet longer it would contain 1200 more square feet than now; if it were 15 feet wider its area would be 1275 square feet greater. Find its dimensions.

190. I bought 2 house-lots, paying for the second $\frac{3}{11}$ as much as for the first. I paid \$392 more for the first than for the second; what was the cost of each?

191. A farmer, by purchase, increased his farm 50 per cent., and then found that he lacked just 150 acres of having tripled it. What was its original size?

192. A real estate dealer bought a house and lot for a certain sum, and after having expended \$1000 in improving the property, sold it at an advance of 25 per cent. on the total cost, by which he gained $33\frac{1}{3}$ per cent. of what he originally paid. How many dollars did he gain?

193. If I buy a certain mining stock at 52 percent. below par, and sell it at 8 per cent. below par, what per cent. shall I gain?

194. What is the side of the largest square that can be made in a circle 40 feet in diameter?

195. What is the length of the tire on a wagon wheel 5 feet in diameter?

196. The parallel sides of a field in the form of a trapezoid are respectively 70 and 120 rods long, and are 42 rods apart. Find its area in acres.

197. How much lumber in a plank $2\frac{1}{4}$ inches thick, 24 inches wide at one end, and $18\frac{1}{2}$ inches at the other, and 16 feet long?

198. One week, 2230 bbls. of flour, which cost \$9.25 per bbl., were received at the port of Cleveland, and it was sold at the rate of \$3.15 per sack of 49 pounds. What was the gain?

199. A marble monument consists of a pedestal 22 inches square, and $3\frac{1}{2}$ feet high, on which stands a pyramid 16 inches square, and $7\frac{1}{2}$ feet high. What did the monument cost at \$13.77 per cubic foot?

200. Counting $22\frac{1}{2}$ bricks to the cubic foot, how many bricks in the walls of a house 49 feet long, 28 feet wide, 20 feet high, and 16 inches thick, allowing 5 per cent. for openings? (Take the entire perimeter of the house as the length of the wall. This is brickmason's custom, giving, however, more than the actual cubic contents of the walls.)

BILLS IN U. S. MONEY, CASH ACCOUNTS, ETC.

1. Find the cost of $846\frac{1}{2}$ lbs of sugar at 14 cents; 345 lbs. coffee at $21\frac{1}{5}$ cents; 48 lbs. tea at 90 cents; 72 doz. cans peaches at \$2.40; and 13 doz. brooms at \$4.

2. John Clay bought of Brady & Co. the following articles: 6 pairs of gloves at \$1.25; 12 shirts at \$2.25; 18 pairs socks at $33\frac{1}{2}$ cents; 2 vests at \$8.75; 1 overcoat at \$40; and 2 umbrellas at \$3.20. Find the amount.

3. Find the cost of 4960 staves at \$90 per M.; 3575 feet of hemlock boards at \$26 per M.; 2240 feet oak plank at \$55 per M.; 4785 feet of pine boards at \$28 per M.

4. What is the cost of 7 inkstands at 15 cents; 9 boxes pens at 88 cents; 8 reams foolscap at \$4; 5 doz. copy books at 96 cents per doz.; and 3 rosewood desks at \$7.50?

5. Find the cost of 8 boxes raisins at \$6.25; 50 lbs. sugar at 20 cents; 48 lbs. currants at $33\frac{1}{3}$ cents; 120 pounds tallow at $16\frac{2}{3}$ cents; 14 bbls. flour at \$10.75; and 30 gals. kerosene at 85 cents.

6. Find the cost of 75 yards carpeting at \$2.50; 42 yards drugget at \$1.80; 16 mats at \$3.25; 18 rugs at \$21; and 81 yards oilcloth at \$1.10.

7. Find the cost of 13 yards linen at \$1.25 ; 24 pairs hose at 75 cents ; 14 pairs gloves at \$1.10 ; 16 skeins silk at 10 cents ; and 44 yards muslin at 15 cents.

8. What is the amount of the following bill :

SAN FRANCISCO, March 1, 1881.

MR. PAUL BROWN,

Bought of SAMUEL GRAY & Co.

120 lbs. Rio Coffee.....	@ 40	cents.
235 lbs. F. C. Sugar.....	" 16 $\frac{1}{5}$	"
124 lbs. Pearl Starch.....	" 14	"
86 gals. Molasses	" 75 $\frac{1}{2}$	"
275 lbs. Crackers.....	" 11	"
120 lbs. Soda	" 10 $\frac{1}{2}$	"

9. Find the cost of 42 boxes oranges at \$8.12 ; 864 lbs. coffee at 33 $\frac{1}{3}$ cents ; 2400 gallons molasses at 92 cents ; 3875 lbs. rice at 12 cents ; and 1250 lbs. sugar at 12 $\frac{1}{2}$ cents.

10. Find the amount of the following bill :

MAY & Co.

Bought of G. NORTON.

5 Reams Paper.....	@ \$3.25	per ream.
4500 Envelopes.....	" 4.78	per 1000.
24 Boxes Pens.....	" 1.12 $\frac{1}{2}$	per box.
3 Photograph Albums....	" 5.75	apiece.

11. Find the cost of 24 yards black silk at \$2.25 ; 80 yds. calico at 30 cents ; 4 dress patterns at \$6.75 ; and 22 $\frac{1}{2}$ yards linen at \$1.12.

12. What will be the cost of 89 $\frac{2}{7}$ acres of land at \$91 ; 21 $\frac{3}{4}$ acres at \$72 ; 115 acres at \$24 $\frac{1}{5}$; 90 acres at \$10 $\frac{2}{3}$; and 56 acres at \$14 $\frac{1}{7}$?

13. A commission merchant sold 482,000 lbs. of wheat at \$1.32 $\frac{1}{4}$ per cental ; 218,600 lbs. barley

at \$1.10 $\frac{1}{2}$ per cental ; and 96000 lbs. of corn at \$1.62 $\frac{1}{2}$ per cental. What was the amount of his commission at 3 per cent.?

14. Find the cost of 250 horses at \$25.50 ; 366 cows at \$22.50 ; 32.40 sheep at \$2.20 ; 420 pigs at \$1 ; and 241 calves at \$7.25.

15. Find the cost of 7425 lbs. iron at 4 $\frac{1}{5}$ cents ; 2666 lbs. steel at 5 $\frac{1}{2}$ cents ; 1725 lbs. copper at 11 cents ; 926 lbs. lead at 7 $\frac{1}{2}$ cents.

16. Bought 230 lbs. flour at 4 $\frac{1}{2}$ cents ; 115 lbs. bacon at 16 $\frac{1}{5}$ cents ; 82 lbs. ham at 22 cents ; 57 lbs. sugar at 12 $\frac{1}{2}$ cents ; 25 lbs. tea at 59 cents ; and 75 lbs. soap at 15 cents. Find the cost of the whole.

17. A retail dealer in clothing bought as follows : 52 pairs of pants at \$4.50 ; 27 pairs at \$5.25 ; 36 pairs at \$6 ; 40 coats at \$13.25 ; 25 coats at \$14 ; and 29 vests at \$3.25. Find the amount.

18. MR. JAMES HORTON,

Bought of LORD & HOWE.

97 bbls. Genesee Flour	@	\$6.25
167 " Philadelphia Flour	"	5.95
87 " Baltimore Flour	"	6.07
196 " Richmond "	"	5.75
69 bus. Rye	"	1.16
136 " Corn	"	.67

Find the amount.

19. Find the cost of 49 grindstones at \$3.50 ; 39 pitchforks at \$1.65 ; 197 rakes at 39 cents ; 86 hoes at 48 cents ; 78 shovels at \$1.25 ; 91 plows at \$9.55 ; and 83 harrows at \$16.60.

20. Bought 37 chests of imperial tea, each 49 lbs., at 52 cents ; 41 chests black tea, each 36 lbs., at 39 cents ; 40 chests of green tea, each 40 lbs.,

at 40 cents; and 13 crates Liverpool ware at \$125 per crate. Find the amount.

21. Find the cost of $7\frac{3}{4}$ yards broadcloth at \$2.40; $29\frac{1}{4}$ lbs. candles at 16 cents; $18\frac{1}{4}$ lbs. coffee at 32 cents; $30\frac{1}{3}$ lbs. soap at 15 cents; 3 lbs. pepper at 17 cents, and $7\frac{1}{2}$ lbs. ginger at 18 cents.

22. MR. E. GRAY,

Bought of JONES & Co.

27 Spelling Books.....	@ \$.19
25 Parker's Composition.....	" .27
17 Arithmetics.....	" .75
9 Greek Lexicons.....	" 3.25
8 Ainsworth's Dictionaries.....	" 5.50
27 Greek Readers.....	" 2.25
18 Folio Bibles	" 9.85
75 Cæsar's Commentaries.....	" 1.20
67 Greek Grammars.....	" 1.25

Find the amount.

23. Bought 789 lbs. of leather at 17 cents; 524 lbs. at $22\frac{1}{2}$ cents; 361 lbs. at 15 cents; 49 lbs. at 31 cents; 368 lbs. at 23 cents, and 266 lbs. at $29\frac{1}{2}$ cents. Find the amount.

24. Find the cost of three hogsheads of wine, 63 gallons each, at \$1.48 a gallon; 5 casks, each 56 gallons, at \$1.26; 9 casks, each 56, at $\$1.19\frac{1}{2}$; 8 bbls., each 32 gallons, at 98 cents, and 16 casks, each 35 gallons, at 97 cents.

25. Sold 19 cords of oak wood at \$5.75 per cord; 27 cords of bark at \$9.85; 36 cords stove wood at \$2.50; $7\frac{1}{2}$ cords of pine wood at \$4.28: and 10 butchers' blocks at \$2.25. Find the amount.

26. Bought 96000 feet of boards at \$11.65 per M.; 48650 feet at \$9.50; 16300 feet at \$14; 11250 feet at \$15; 7620 feet of planks at \$18, and 29600 feet scantling at \$16. Find the amount.

27. What is the cost of 25 gross of penknives at 27 cents apiece; 35 doz. pocket-knives at 82 cents apiece; 42 doz. inkstands at $18\frac{1}{2}$ cents each; 35 gross rubbers at \$3.25 a gross; 25 doz. boxes chalk at \$5.88 per doz.; and 8 writing desks at \$3.65 each?

28. Find the balance of the following cash account. Debits—\$96.50, \$82.96, \$596.75, \$288.62, \$8.40, \$29.10, \$1.66, \$482.15, \$362.94, \$81.82, \$1.50, and \$662.49. Credits—\$92.90, \$529.60, \$4.49, \$5.68, \$29.62, \$97.90, \$8.82, \$14.15, \$33.75, \$188.62, \$248.80, \$336.24.

29. Cash on hand in the morning, \$42. Received during the day, \$11.60, \$1.90, \$5.55, 25 cents, 75 cents, 80 cents, \$2.90, \$3.60, \$1.25, 15 cents, \$4.40, and \$3. Paid out during the day, \$2.50, \$5, \$1.10, 85 cents, \$1.10, 25 cents, \$3.60, \$25, \$14, 70 cents, 20 cents, \$3.35. How much cash should be on hand at night?

30. Find the cost of $1728\frac{1}{2}$ square yards of plastering at 18 cents per yard; 588 square yards of tinting at $24\frac{3}{4}$ cents per yard; 747 square yards of whitening at $7\frac{5}{8}$ cents per yard; 17 center pieces at \$3.75 each; and 9 marble mantels at \$37.75 each.

31. A grocer bought several different qualities of tea, to wit: $127\frac{1}{2}$ lbs. at 40 cents; $215\frac{3}{4}$ lbs. at 52 cents; 189 lbs. at 66 cents; $204\frac{1}{2}$ lbs. at 72 cents; and 95 lbs. at \$1.10. Find the cost of the whole.

32. Find the amount of the following: 3256 lbs. iron at $2\frac{1}{4}$ cents; 1662 lbs. at 2 cents; 2589 lbs. at $3\frac{1}{3}$ cents; 995 lbs. at $4\frac{1}{5}$ cents; and 880 lbs. at $1\frac{3}{4}$ cents.

33. Find the cost of $80\frac{1}{4}$ yards sheeting at 16 cents; 73 yards prints at 15 cents; $62\frac{1}{2}$ yards

broadcloth at \$4.40; 29 yards merino at \$1.44; and $38\frac{3}{4}$ doz. buttons at 76 cents a doz.

34. Find the amount of 4 lbs. Java coffee at 45 cents; $3\frac{1}{2}$ lbs. tea at \$1.50; 15 lbs. coffee sugar at $16\frac{1}{2}$ cents; 24 lbs. crushed sugar at 18 cents; 4 oz. nutmegs at $12\frac{1}{2}$ cents; 7 doz. eggs at 22 cents; and 3 brooms at 50 cents.

35. Find the cost of $86\frac{1}{4}$ yards sheeting at 24 cents; $17\frac{1}{2}$ yards flannel at 62 cents; $\frac{3}{4}$ doz. handkerchiefs at \$6.28 per dozen; 3 doz. spools silk at 48 cents; 5 suits underclothing at \$2.85; 14 yards ribbon at 75 cents; and 29 yards lining at 17 cents.

36. A farmer sells to a merchant 895 lbs. of grain at $3\frac{3}{5}$ cents; $14\frac{1}{2}$ tons of hay at \$18 per ton; 56 cords of wood at \$7.50; 498 lbs. hams at $23\frac{1}{2}$ cents; 764 lbs. lard at 18 cents; 15 loads of beets at \$4.75 per load; 7 cows at \$36; and 5 pairs of oxen at \$49.50. He receives in part payment, 25 gals. molasses at 37 cents; 650 lbs. flour at 6 cents; 256 lbs. white sugar at 18 cents; 650 lbs. of rice at $16\frac{1}{2}$ cents; 86 lbs. coffee at 38 cents; 35 lbs. tea at 58 cents; and 325 lbs. stock salt at $\frac{4}{5}$ of a cent per lb. Find the cash balance due him.

37. The captain of ship "Wandering Jew"—about to sail from San Francisco—bought of Hanley & Snow, wholesale grocers, on December 23, 1881, the following ship's stores: 2572 lbs. hard bread at $5\frac{1}{2}$ cents; 1876 lbs. pork at $15\frac{1}{4}$ cents; 2960 lbs. beef, at $14\frac{1}{2}$ cents; 226 lbs. brown sugar at $9\frac{1}{2}$ cents; 20 gals. molasses at $36\frac{1}{2}$ cents; 429 lbs. beans at 15 cents; 275 lbs. peas at $17\frac{1}{5}$ cents; 4 doz. bottles lime juice at \$2.50 per doz.; 27 lbs. raisins at $26\frac{1}{3}$ cents; 10 gals. vinegar at 45 cents; and 25 lbs. salt at 3 cents. Make out the bill in proper form, in the name of the ship; find the amount, and receipt the bill.

38. A farmer sells 67 bushels potatoes at 40 cents; 49 bushels corn at 75 cents; 27 bushels rye at \$1.50; 15 bushels wheat at \$2.12; and 58 bbls. apples at \$1.87. In payment, he receives 3 cows at \$25.75 each; 1 plow worth \$11.75; and the balance in cash. How much money did he receive?

39. Find the cost of 1864 lbs. of indigo at $17\frac{1}{4}$ cents; 2962 lbs. Epsom salts at $18\frac{1}{2}$ cents; 475 lbs. madder at $26\frac{4}{5}$ cents; 218 lbs. logwood at $34\frac{1}{2}$ cents; and 96 lbs. opium at \$2.75.

40. On looking over my account with George Bray, I find the following items: he owes me for 46 days' labor at \$2.50; 13 bbls. apples at \$4.85; three cows at \$27; a yoke of oxen at \$59; 7 tons of hay at \$19.25; and 2 bbls. cider at \$5.40. I owe him for 825 lbs. flour at $4\frac{1}{5}$ cents; 36 lbs. sugar at $15\frac{1}{2}$ cents; 46 lbs. bacon at $22\frac{1}{2}$ cents; 1 plow at \$12; 29 yards calico at 8 cents; and \$207 cash. Which of us owes the other, and how much?

41. M. W. GREEN & Co.

Bought of AMERICAN CLOCK Co.

24 Alarm No. 3	@ \$ 3.28
16 " " 2	" 4.65
18 " Marine " E "	" 2.75
14 Nickle Watches	" 5.25
1 Regulator	" 46.00
9 Banner No. 6	" 6.82

Find the amount.

42. A retail dealer bought 25 tons Wellington coal at \$9.25; 15 tons Seattle coal at \$7.50; 20 tons Hartley coal at \$8.40; 27 tons Anthracite coal at \$12.50; and 115 bbls. of coke at 65 cents. Find the amount.

43. A sheep-raiser delivers to a wool-merchant 8462 lbs. wool at $23\frac{1}{2}$ cents; 4800 lbs. at 25 cents;

2750 lbs. at 27 cents; 1480 lbs. at $32\frac{1}{4}$ cents; 1500 lbs. at 19 cents; and 2696 lbs. at $28\frac{1}{2}$ cents. Find the amount.

44. MR. SNOW,

To PEPPER & Co., Grocers, Dr.

To 265 lbs. flour.....	@ \$	.06
48 " bacon.....	"	.23
126 " C. sugar.....	"	$.15\frac{1}{2}$
44 " B. ".....	"	.13
8 doz. canned fruit.....	"	2.00
15 lbs coffee.....	"	.33
10 " tea.....	"	.67
5 gals. syrup.....	"	1.10

Find the amount.

45. Find the cost of 29 lbs. Epsom salts at 46 cents; 45 lbs. sulphur at 12 cents; 146 lbs. chloride of lime at $16\frac{1}{2}$ cents; 73 gals. alcohol at \$1.96; 56 gals. whiskey at \$2.75; 49 gals. Cal. port wine at \$2.20; and 38 ozs. quinine at \$1.75.

46. Find the amount of 216 pairs boots at \$2.25; 160 pairs brogans at $\$1.12\frac{1}{2}$; 75 pairs women's gaiters, \$1.25; 110 pairs enameled boots at $\$1.37\frac{1}{2}$; 6 cases men's calf boots at \$75.50: one case drill muslin (648 yards) at $14\frac{1}{2}$ cents; and 72 gross silk buttons at $87\frac{1}{2}$ cents per gross.

47. A broker sold on account of a planter 8 bales, each 492 pounds, at $18\frac{1}{4}$ cents; 6 bales, each 510 pounds, at $21\frac{1}{2}$ cents; and 3 hhds., each 84 gallons, N. O. molasses at 60 cents. Find the amount.

48. Find the cost of 7 reams of note paper at \$3.75; 15 reams foolscap at \$3.80; 7500 envelopes at \$3.90 per M; 28 boxes pens at \$1.05; 8 Spanish dictionaries at \$2.50; and 13 photograph albums at \$4.25.

49. Bought of LUX & MILLER.

1926 lbs Beef.....	@	9½ cents.
2460 " Mutton.....	"	5¼ "
2372 " Pork.....	"	13 "
480 " Veal.....	"	14½ "

Find the cost.

50. Cash on hand in the morning, \$62.40. Received during the day \$5.50, \$2.98, \$1.57, \$3.35, \$4.42, \$1.15, \$9.95, \$10, \$3.30, \$7.75, 25 cents, 85 cents, 90 cents, and \$13.65. Paid out during the day, \$14.25, \$9.62, \$13.41, \$12, \$1.88, \$1.60, 80 cents, 65 cents, 25 cents, and \$14.25. Balance the account.

51. H. M. CURTIN,

Bought of NAGLE BROS.

450 lbs. A. Sugar.....	@ \$	.12½
240 " B. "	"	.11¾
320 " Rice.....	"	.10½
220 " O. J. Coffee.....	"	.22½
30 Boxes Oranges.....	"	3.75
16 " Lemons.....	"	3.37½
15 " Raisins.....	"	4.12

Find the amount.

52. A contractor excavated 4824 cubic yards of earth at $28\frac{1}{3}$ cents per yard; 5968 yards at 32 cents; 8664 yards at $27\frac{1}{2}$ cents; and 11362 yards at 27 cents. He also built a dam of rock and earth, containing 58652 cubic yards, at $19\frac{1}{2}$ cents per yard. What did all the work amount to?

53. Cash on hand on the morning of May 7th, \$286.94. Received for sales, May 7th, \$378.29; May 8th, \$496.50; May 9th, \$277.62; May 10th, \$398.45. Paid out during the same days, \$98.75, \$257.50, \$88.80, and \$187.20. Required, cash on hand on the evening of May 10th.

54. A farmer sold to a merchant 210 bushels wheat at \$1.65; 340 bushels corn at 68 cents; 256 bushels oats at 57 cents; 159 bushels barley at 65 cents; and 8 bbls flour at \$7.20. Find the amount.

55. I find, on consulting my books, that Henry Green owes me for 47 days' work, at \$2.25 per day, and that I have bought of him, on account, 56 lbs. bacon at 23 cents; 126 lbs. of flour at $4\frac{1}{2}$ cents; 30 lbs. B. sugar at $9\frac{1}{2}$ cents; 25 lbs. salt pork at 16 cents; 3 brooms at 40 cents; 4 lbs. tea at 53 cents; and cash \$75. How does the account stand between us?

56. A manufacturer employs 120 men at \$2.30 per day; 72 men at \$1.70 per day; 70 boys at \$1 per day; 85 girls at 90 cents, and 23 girls at 75 cents. What is the amount of his weekly pay roll?

57. Cash on hand in the morning, \$472.65. Received during the day, \$86.95, \$92, \$41.56, \$11.20, \$88.98, \$16.25, \$5.21, \$55.85, \$96.37, \$15, \$72.68, \$58.20, \$19.10, \$70, and \$2.35. Paid out during the day, \$250, \$118, \$37.35, \$1.90, \$82, \$93.90, \$27.20, \$11.65. Balance the account with cash on hand at night.

58. Find the amount of the following lumber: 19 boards, 18 feet by $8\frac{1}{2}$ inches; 24 boards, 16 feet by 10 inches; 9 planks, 2 inches thick, 12 feet long, and 15 inches wide; 82 scantlings 2x3, 12 feet long; and 39 scantlings 2x4, 14 feet long; all at \$24 per M.

59. To build a certain fence will require 1346 fencing boards, 16 feet long and 6x1; 570 posts, each 7 feet long and 4x5; the lumber costing \$18 per M; and 196 lbs. nails, worth $6\frac{1}{2}$ cents a lb. What was the entire cost of the material?

60. What is the value of 3224 3-inch planks, each 18 feet long, and averaging $14\frac{1}{2}$ inches in width, at $\$21\frac{1}{4}$ per M?

61. What is the value of 92865 lbs. wheat at $\$2.15$ per cental; 84290 lbs. barley at $\$1.88$; 41620 lbs. corn at $\$1.96$; and 8265 lbs. rye at $\$1.45$?

62. Bought of HARDIE & DARLING.

87 $\frac{1}{2}$ yards Brussels Carpet..	.....	@	$\\$1.16$
84 " Three-ply .	.....	"	.98
46 " Stair Carpet. ....	.....	"	$85\frac{1}{2}$
17 $\frac{1}{2}$ square yards Oilcloth.....	.....	"	1.10
37 $\frac{1}{2}$ yards Matting ..	.....	"	.28

Find the amount.

63. What will be the cost of 19 two-by-three scantlings, 16 feet long, and 36 four-by-four scantlings, 18 feet long, at $\$19.50$ per M?

64. Find the cost of 250 gals. of kerosene at $37\frac{1}{2}$ cents; 185 gals. at 42 cents; 366 gals. at $29\frac{1}{2}$ cents; and 75 lamps at $\$1.68$.

65. A carpet layer, in one month, put down 3260 yards of carpet at 5 cents a yard; 529 yards at 6 cents; 462 yards at $7\frac{1}{2}$ cents; and 195 yards at 8 cents. What were his net receipts?

66. A granger sends to the Central Commission House 15685 lbs. grain, which is sold at $\$2.37$ per cental; 1266 lbs. potatoes at $2\frac{1}{2}$ cents. per lb.; and 2529 lbs wool at 32 cents. He orders 345 lbs. bacon, worth 19 cents; 80 lbs. salt pork at $18\frac{1}{2}$ cents; and 500 lbs. nails at $5\frac{1}{2}$ cents. What is the balance due him?

67. Find the cost of 2648 lbs. of coal at $\$7.60$ per ton; 2390 lbs. at $\$8.25$ per ton; 4828 lbs. at $\$9$, and 6290 lbs. at $\$10.50$ per ton.

68. A drover bought cattle at $\$46.56$ per head, and sold them at $\$65.42$ per head, and thereby gained $\$3526.82$. How many cattle did he buy?

69. A gardener sold from his garden 780 bunches of onions at 15 cents a bunch; 49 bushels potatoes at 95 cents; 237 heads of cabbage at 8 cents; 15 doz. cucumbers at 18 cents a doz. He expended \$2.75 for fertilizers; \$10.50 for help; and \$2.55 for seed. What were his profits?

70. For the first 5 years of business a trader averaged \$1329.50 a year profits, and for the next 2 years \$1500 a year profits; after that he lost \$950 a year for 3 years. If he started in business with \$2500, how much was he worth at the conclusion of the time mentioned?

71. A copyist wrote 496 folios at 8 cents; 924 at $7\frac{1}{2}$ cents; 328 at $9\frac{1}{2}$ cents; and 210 at 11 cents. What did it amount to?

72. What cost 23487 feet of redwood boards at \$14.50 per M; and 18888 feet sugar pine at \$34 per M?

73. Cash on hand in the morning, \$2.50. Received during the day, 88c., 94c., 45c., 29c., 5c., 10c., 26c., 82c., 75c., 69c., and 15c. Paid out during the day 85c., 67c., 62c., 59c., 48c., \$1.25, \$1, 35c., and 42c. Required cash on hand at night.

74. If a man earns \$2.75 per day, and spends \$5.40 per month for beer; \$6.28 for tobacco; \$4.65 for car fare; \$16 for board; and \$11 for sundries, how much money will he save in 3 years of 312 working days each, if he loses in that time twenty-seven days on account of sickness?

75. If I lay in 7 tons of coal at \$11.25 per ton; 15 barrels of coke at 88 cents per barrel; two loads of kindling at \$4.25 per load, and pay out \$2.55 for sawing and splitting, how much does my fuel cost me?

76. What is the value of 429 bales of cotton, averaging $566\frac{2}{3}$ pounds each, at 13 cents a pound?

77. A person who earns \$2400 a year, spends during the twelve months of the year as follows: \$189.70, \$172.45, \$296.10, \$150, \$215.95, \$280, \$175.10, \$162.55, \$275, \$204.25, \$183.50, \$195.15. Does he save anything, or does he find himself in debt at the end of the year, and how much?

78. How much will a man waste in useless and hurtful indulgence in 20 years, of 365 days each, if he smokes four cigars daily, averaging $7\frac{1}{2}$ cents apiece, and takes 5 drinks a day at $12\frac{1}{2}$ cents each?

79. For ten years a certain person has averaged \$10.25 per month for wine, beer and whiskey. Allowing 3 per cent. on the total amount for interest, how much money has he thus thrown away?

80. A dairyman kept 46 cows for seven months, during which time they averaged each 1.7 gallons of milk daily, and each gallon produced 1.1 pounds of cheese, which was sold at 13 cents a pound. What were his net receipts? [Count 30 days to a month.]

81. During May a family spent as follows: for rent, \$31.50; fuel, \$5.65; table, \$47.85; sundries, \$86.90. During June they diminished their expenses one-half, but in July they spent 25 per cent. more than in May. What were their average expenses per month?

82. Find the value of 46 casks of wine, each $39\frac{1}{2}$ gallons, at \$1.65 per gallon.

83. On the debit side of an account are found the following items: \$32.09, \$21, \$15.65, \$88.62, \$19.19, \$5, \$32.67, \$13.50, \$5.55, \$1.75, \$2.90, 85 cents, 95 cents, and \$42.80. On the credit side \$256.29, \$110, \$50, and \$72.98. Balance the account.

84. A man bought 75 chairs at \$1.15, 18 at 90 cents, 15 at \$2.25, and 24 at \$1.85. He sold the

first lot at an advance of 45 cents each, the second at a profit of 55 cents each, on the third lot he gains \$7, and on the last lot he doubled his money. What was his entire gain?

85. Find the balance in the following account :

DR.	CR.
\$829 65	\$274 80
357 48	1198 75
486 09	21 20
29 10	9 75
36 00	823 90
296 84	188 27
88 89	15 15

86. M and N bought each 266 acres of land. M sold his so as to gain \$14 per acre; N lost \$4 an acre. If the total amount of their sales was \$10660, what did both tracts of land originally cost?

87. Find the cost of 8 yards silk at \$1.25; 18 yards muslin at 27 cents; 29 yards linen at 17 cents; 13 yards calico at 35 cents; and 4 yards gingham at 65 cents.

88. If a man spend \$2.88 a day, and earn \$125 a month, how much will he save in 10 years of 365 days each?

89. Thomas Baker bought of Baines & Co.: 7 pieces sheeting, each $46\frac{1}{2}$ yards, at 16 cents; 42 pieces Merrimac prints, each 32 yards, at $12\frac{1}{2}$ cents; 50 yards broadcloth at \$2.29; and 32 doz. buttons at 40 cents per doz. Find the amount.

90. What is the value of 27350 bricks at \$7.50 per M; 12600 ditto at \$8.20 per M; and 75250 ditto at \$11.75 per M?

91. If it cost \$340.20 to stereotype a book of 504 pages of 1080 ems each, how much is that per 1000 ems?

92. At $66\frac{2}{3}$ cents a cubic yard, how much does it cost to dig a cellar 54 feet long, 30 feet wide, and 10 feet deep?

93. A plank road 5 miles 235.2 rods long was built for \$6236.81 $\frac{1}{4}$. What was the cost per mile?

94. If 1480 pounds of old rope cost \$23.12 $\frac{1}{2}$, how much is that per ton?

95. A trader stocked a country store at a cost of \$6777.75. During the year he bought goods to the amount of \$15829.50, and sold goods to the amount of \$18925. His expenses were \$1256 $\frac{1}{2}$ and the goods in the store at the close of the year were worth \$9580 $\frac{1}{4}$. What was his gain during the year?

96. Find the cost of 2469 feet of boards at \$7 per M; 4520 feet of scantling, at \$9.50; 620 feet timber at \$12.75; 957 feet planks at \$15; 2570 laths at 75 cents per hundred, and 63000 shingles at \$4.25 per M.

97. I bought a farm of W. M. Gray for \$3250; a span of horses for \$325; and 7 cows at \$38 each. I paid him \$525 cash, and three town-lots worth \$275 each. How much remains unpaid?

98. What will it cost to fence my house lot measuring 8 rods by 4, if I pay 21 $\frac{3}{4}$ c per foot for the fence?

99. A farmer delivers 3 loads of hay weighing respectively as follows: 3642 $\frac{1}{2}$ lbs., 2889 lbs., and 3278 $\frac{1}{2}$ lbs., including the wagon, which weighs 990 lbs. What is the value of the hay at \$15.50 per ton?

100. A drover bought 429 head of horses for \$12558.50. He sold 200 of them at \$25.75 per head, and 100 at \$27 a head. The rest he sold at a price which brought him out with a profit of \$1290 on the whole transaction. At what price per head did he sell them?

ANSWERS TO SEVENTH GRADE.

- | | | |
|------------------|----------------------------|-------------------|
| 1. 42 marbles. | 37. \$40. | 69. \$6. |
| 2. 252 days. | 10 pigs. | \$174. |
| 3. 174 gloves. | 38. 6 calves. | 70. 916 cattle. |
| 4. 27 years. | \$6 left. | 71. 1992 barrels. |
| 5. 4 almonds. | 39. $13\frac{1}{2}$ yards. | 72. 1220 calves. |
| 6. 218 marbles. | 40. \$11. | 73. \$20.80. |
| 7. 91 blocks. | \$19. | 74. \$234.50. |
| 8. \$681. | 41. 20 chickens. | 75. 367 boxes. |
| 9. 168 pupils. | 42. 11 nuts. | \$7.34. |
| 10. 1771 days. | 43. 45 almonds. | 76. \$8.60. |
| 11. 390 pigs. | 44. \$9. | 77. \$291. |
| 12. \$362. | 45. \$765. | 78. 44 marbles. |
| 13. \$3.40. | 46. \$15.95. | 79. \$168. |
| 14. 444 lbs. | 47. 33 oranges. | 80. \$2356. |
| 15. \$34. | 48. 26 apples. | 81. \$5919. |
| 16. 127 miles. | 49. 42 sacks. | 82. 596 bags. |
| 17. \$4.11. | 50. 46 cents. | 83. 767 acres. |
| 18. \$41. | 51. 106. | 84. 245 marbles. |
| 19. \$100. | 52. 869 horses. | 85. \$3.05. |
| 20. 435 sheep. | 53. \$200. | 86. \$274. |
| 21. \$1051. | 54. \$85. | 87. \$20.13. |
| 22. 771 cards. | 55. \$5.70. | 88. \$1717. |
| 23. 37 years. | \$28.50. | 89. 322 miles. |
| 24. 32 years. | 56. \$1.80. | 153 miles. |
| 25. \$1.00. | 57. 196 miles. | 90. 4386 days. |
| 26. 122 days. | 58. 1222 trees. | 91. 27 marbles. |
| 27. 793 animals. | 59. 1 mile. | 92. \$58. |
| 28. \$7.30. | 60. \$43.94. | 93. 204 trees. |
| 29. \$21.96. | 61. \$36.27. | \$1020. |
| 30. \$6.48. | 62. \$18.61. | 94. \$14. |
| 31. \$86. | 63. \$1790. | 95. Lost \$251. |
| 32. 49 marbles. | 64. 2951 sheep. | 96. \$392. |
| 33. 756 acres. | 65. \$133. | 97. 252 cattle. |
| 34. \$8. | 66. \$547. | 98. \$587. |
| 35. 13 pures. | 67. \$1.80. | 99. 42 marbles. |
| 36. 15 cents. | 68. 54 pupils. | 100. \$3048. |

ANSWERS TO SIXTH GRADE.

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|-------------------|-------------------|-------------------|
| 1. \$308232. | 35. \$38. | 69. \$566. |
| 2. \$541. | 36. 58804 and 1 | 70. \$9449. |
| 3. 739.30. | rem. | 71. \$22.65. |
| 4. 102 mi. | 37. \$501. | 72. 2492 quarts. |
| 816 mi. | 38. \$580.50. | 73. \$11.70. |
| 5. \$351. | 39. \$364. | 74. 3009. |
| 6. \$51.45. | 40. \$2229. | 75. 1991. |
| 7. 12 months. | 41. \$172. | 76. \$10375. |
| 8. \$1539.73. | 42. \$1578. | 77. \$32.17. |
| 9. 5788. | 43. 62 years. | 78. \$11022. |
| 10. 34178. | 44. Lost \$5. | 79. 532 marbles. |
| 11. \$6.45. | 45. 17529 days. | 80. 968 rods. |
| 12. \$6.78. | 46. 34482 days. | 81. 400 ft. \$96. |
| 13. 26018. | 47. 7044 inches. | 82. 408 rods. |
| 14. 1214. | 48. 3690 sheep. | 83. 10164 inches |
| 15. 8595 horses. | 49. 68568 hours. | 84. \$3420. |
| 16. \$44.88. | 50. \$1300. | 85. \$155.38. |
| 17. \$3657.50. | 51. 162 acres | 86. \$22.08. |
| 18. 512 barrels. | 52. \$19. | 87. \$407.58. |
| 19. 26340 sheep. | 53. \$1095. | 88. 1552 oz. |
| 20. 22930 sheep. | 54. 385 years. | 89. \$96. |
| 21. 1232 schol's. | 55. 199652 sq mi. | 90. 62 weeks. |
| 22. 65 pupils. | 56. \$951. | 91. \$225. |
| 23. 225 miles. | 57. \$962. | 92. \$1122. |
| 24. 4670 acres. | 58. \$647. | 93. \$35405. |
| 25. 454 acres. | 59. \$29. | 94. 1530 cents. |
| 26. 2813 sheep. | 60. 5902. | 95. 116 bbls and |
| 27. \$67.75. | 61. 3540 days. | 4 rem. |
| 28. \$573.25. | 62. \$109. | 96. 16 marbles. |
| 29. 51301. | 63. 9057 cattle. | 97. \$1200. |
| 30. 96 lbs. | 64. 2588 acres. | 98. \$148.35. |
| 31. \$335.20. | 65. \$77. | 99. \$3500. |
| 32. 92 miles. | 66. \$620. | 100. S. 442. |
| 33. \$14115. | 67. \$248.43. | D. 244. |
| 34. \$48.60. | 68. 1950 miles. | P. 33957. |

ANSWERS TO FIFTH GRADE.

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|--------------------|-----------------------------|-------------------|
| 1. 1949. | 36. \$4893. | 70. \$20032. |
| 2. 23430. | 37. \$5950. | 71. \$1785. |
| 3. \$568.50. | 38. \$2546. | 72. \$3240. |
| 4. \$43. | 39. \$30.24. | 73. 8 barrels. |
| 5. \$296. | 40. 217 sq. yds. | 74. 490 chestn'ts |
| 6. 1400 barrels. | 41. \$4420. | 75. \$180. |
| 7. \$6565. | 42. \$47.70. | 76. 475. |
| 8. \$1960.05. | 43. 86400 sec. | 77. \$154. |
| 9. 64 years. | 44. \$28.75. | 78. 741 marbles. |
| 10. \$404.75. | 45. \$43.50. | 79. 753 hours. |
| 11. \$112.85. | 46. \$296.45. | 80. 45 cents. |
| 12. \$6.70. | 47. 48 rods. | 81. \$985.50. |
| 13. \$1040. | 48. 20 feet. | 82. \$295. |
| 14. \$6750. | 49. 60 yards. | 83. S. 3456. |
| 15. 190 miles. | 50. \$3283.20. | D. 1668. |
| 16. 3045 miles. | 51. \$37.60. | P. 2290428. |
| 17. 611 miles. | 52. 42 lots. | 84. 13200 steps. |
| 18. 424 days. | 53. \$258. | 85. \$341.90. |
| 19. 30 days. | 54. 18 doz or 216 | 86. 3519 steps. |
| 20. 1607 feet. | eggs. | 87. \$78.71. |
| 21. 3325 days. | 55. 5280 feet. | 88. 99472 sq yds |
| 22. 7134 inches. | 56. \$248.43 | 89. \$372. |
| 23. 485 weeks. | 57. \$1920.67. | 90. 109395 w'ds. |
| 24. 9936 sq. in. | 58. \$117. | 91. 514 acres. |
| 25. 24000 sq. ft. | 59. \$25.61. | 92. 537 acres. |
| 26. 4465 sq. rods. | 60. 363 pounds. | 93. \$113.06. |
| 27. 538 rods. | 61. \$317.30. | 94. \$584. |
| 28. 250 feet. | 62. \$388.60. | 95. 61 miles. |
| 29. 1152 inches. | 63. \$2900. | 96. 882 c. |
| 30. \$23.76. | 64. \$38.58. | 97. \$576. |
| 31. \$2940. | 65. 17871. | 98. 6151. |
| 32. 1076 acres. | 66. 3093 $\frac{1}{3}$ yds. | 99. \$1191. |
| 33. 1000 horses. | 67. A. D. 1769. | 100. \$288.10. |
| 34. \$1638. | 68. 472 acres. | |
| 35. 15639. | 69. 246 yards. | |

ANSWERS TO FOURTH GRADE.

- | | | |
|-------------------------------|-------------------------------|-----------------------------|
| 1. 75 months. | 33. 876 inches. | 68. 5850 lbs. |
| 2. 8 days. | 34. 17625 rods. | 69. \$1748. |
| 3. \$32.50 | 35. 276 inches. | 70. \$3366. |
| 4. $13\frac{2}{5}$ ft. | 36. $358\frac{5}{8}$ acres. | 71. \$37.44. |
| 5. $100\frac{3}{10}$ lbs. | 37. \$420.21. | 72. 4900 pencils |
| 6. \$10805. | 38. $56\frac{5}{6}$ sq. rods. | 73. \$11.47 $\frac{1}{5}$. |
| 7. \$1871. | 39. \$69 $\frac{3}{8}$. | 74. \$4380. |
| 8. \$7598.75. | 40. \$15 $\frac{3}{4}$. | 75. \$58. |
| 9. \$230 lost. | 41. \$5734. | 76. 475 acres. |
| 10. \$9588. | 42. \$131 $\frac{3}{4}$. | 77. 24 calves. |
| 11. $484\frac{5}{16}$ acres. | 43. \$108 $\frac{1}{2}$. | 78. 17 miles. |
| 12. $329\frac{2}{9}$ sq. yds. | 44. $3\frac{3}{4}$ feet. | 79. \$228.46. |
| \$385.19. | 45. $3\frac{2}{3}$ miles. | 80. \$119.25. |
| 13. \$4091.50. | 46. 871. | 81. 21 cows. |
| 14. S. $4\frac{2}{40}$. | 47. $559\frac{7}{12}$. | 82. \$334.50. |
| D. $\frac{3}{40}$. | 48. 89 sq. miles. | 83. 486. |
| P. $5\frac{1}{4}$. | 49. \$242.60. | 84. \$272. |
| 15. \$24808. | 50. $2\frac{7}{4}$. | 85. $101\frac{4}{9}$. |
| 16. \$1105.02. | 51. \$87.05. | 86. 269 shirts. |
| 17. \$8138.71. | 52. \$153. | 87. 131 pears. |
| 18. \$140.72. | 53. \$2128. | 88. 32 grammars |
| 19. \$155.53. | 54. 981 sq. in. | 89. \$2 26. |
| 20. \$441.90. | 55. 43080 hrs. | 90. \$30230. |
| 21. \$1396.92. | 56. 12760 steps. | 91. \$59.40. |
| 22. 10944 miles. | 57. \$135.54. | 92. \$2.54. |
| 23. \$10. | 58. \$10990. | 93. $48\frac{3}{5}$ yards. |
| 24. 126 bushels. | 59. \$1373.85. | 94. $125\frac{1}{20}$. |
| 25. 18 minutes. | 60. 2772 miles. | 95. \$426. |
| 26. 1479. | 61. 145 marbles. | 96. $9\frac{3}{4}$ yards. |
| 27. 71365. | 62. \$7950. | 97. 165 lots. |
| 28. \$27685. | 63. \$37722. | 98. \$901. |
| 29. \$13580. | 64. \$28908. | 99. 1020 days. |
| 30. 577 years. | 65. 36 rods. | 100. 78 pupils. |
| 31. 31622400 sec | 66. $3\frac{1}{30}$ yards. | |
| 32. 262080 min. | 67. \$25.20. | |

ANSWERS TO THIRD GRADE.

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|--------------------------------|-------------------------------|---|
| 1. \$12480. | 30. \$350. | 65. \$58.84. |
| 2. 14 years. | 31. \$49.08. | 66. 11. |
| 3. \$875. | 32. $2.19\frac{17}{24}$ acres | 67. 172.91692. |
| 4. $48.5 +$ cds. | 33. $27\frac{19}{60}$ ft. | 68. 394 casks. |
| 5. \$271. | 34. 14725 sq.yds | 69. \$1028.41. |
| 6. \$5667.75. | 35. $\frac{29}{70}$ | 70. \$373.75. |
| 7. \$8709. | 210 head. | 71. 42.8 ft. |
| 8. \$4.20. | 36. \$4 $\frac{1}{6}$. | 72. 414.11 times. |
| 9. 201 marbles | 37. \$8.37. | 73. 125 apples. |
| 10. 8 minutes. | 38. 24 dozen. | 74. 21126. |
| 11. $5\frac{1}{2}$ days. | 39. \$18.55. | 17526. |
| 12. \$1458. | 40. $7\frac{1}{3}$ acres. | 75. \$6.90. |
| 13. 15 gallons. | 41. 23.5 bush. | 76. \$50.55. |
| 112 hours. | 42. \$1.40. | 77. $4\frac{2}{3}$ inches. |
| 14. 10220. | 43. $81\frac{3}{8}$ sq. in. | 78. \$166.50. |
| 5070. | $36\frac{1}{2}$ inches. | 79. 292450. |
| 15. 737 sq. ft. | 44. $7\frac{5}{24}$ miles. | 80. \$393.25. |
| 792 " | $34\frac{3}{5}$ miles. | 81. 800 count'rs. |
| 1206 " | 45. \$72 $\frac{3}{8}$. | 82. 3660 sq. ft. |
| 2735 " | 46. \$12 $\frac{1}{4}$. | 83. $152\frac{8}{9}$ sq. yds. |
| $303\frac{8}{9}$ sq. yds. | 47. $41\frac{1}{6}$ tons. | 84. $44338\frac{1}{2}\frac{1}{4}$ s. y. |
| 16. \$41.58. | 48. \$4594. | 85. 2409 cu. in. |
| 17. \$49.98. | 49. \$964 $\frac{1}{16}$. | 86. 5985 gallons. |
| 18. $190\frac{103}{160}$ acres | 50. \$4725. | 87. 120960 blks. |
| $700\frac{1}{2}$ rods. | 51. 291.955 rds. | 88. 1560 sq. rds. |
| 19. \$704.25. | 52. \$42.36. | 89. $190\frac{1}{2}$ fath. |
| 20. 3060 sq. ft. | 53. \$63.97. | 90. $\frac{1}{4}\frac{3}{9}$ of an acre |
| 340 sq. yds. | 54. \$434.61. | 91. \$55.80. |
| \$17.93. | 55. \$1042.27. | 92. \$79.80. |
| 21. \$144. | 56. \$157.25. | 93. \$28.80. |
| 22. 640 acres. | 57. 310. | 94. \$105196. |
| 23. \$4.80. | 58. \$100907. | 95. \$96.80. |
| 24. \$10. | 59. $3411\frac{1}{2}$ sq. y. | 96. 62823 days. |
| 25. \$7714.11 | 60. \$17.90. | 97. 108 days. |
| 26. \$309.35. | 61. $15\frac{9}{4}$. | 98. \$43181.25. |
| 27. 3775 acres. | 62. 82.49 cwt. | 99. \$4725.75. |
| 28. \$320.60. | 63. \$1.70. | 100. \$46.15. |
| 29. \$2624.50. | 64. 2838 sq. ft. | |

ANSWERS TO SECOND GRADE.

- | | | |
|--------------------------------|----------------------------------|--------------------------------|
| 1. \$9712. | 34. 44928 cu. in. | 65. \$1428.52. |
| 2. 10 children. | 35. 7776 sq. in. | 66. \$25.20. |
| 3. \$614.85. | 36. 150 sq. ft. | 67. \$1074.52. |
| 4. 19040. | 37. 96 inches. | 68. \$103238.01. |
| 5. 228.37 rds. | 38. 6311 $\frac{1}{4}$ gals. | 69. \$365.38. |
| 6. 1145 $\frac{5}{8}$ sq. y. | 39. 576 gals. | 70. 5278. |
| 7. 220 $\frac{179}{40}$ acres | 40. 3 $\frac{137}{462}$. | 71. 7250 bush. |
| 8. 897 sq. ft. | 41. \$2. | 72. \$48000. |
| 832 sq. ft. | 42. \$717.86. | 73. \$5.31+ |
| 1104 sq. ft. | 43. \$5223.90. | 74. \$200000. |
| 314 $\frac{7}{9}$ sq. yds. | 44. \$54.55. | 75. 76 per cent. |
| 9. 760 sq. yds. | 45. 2 \times 60, 3 \times 40 | 76. 34 per cent. |
| 10. \$31.32. | 4 \times 30, 5 \times 24 | 77. \$99.22. |
| 11. 1327 $\frac{1}{2}$ sq. ft. | 6 \times 20, 8 \times 15 | 78. 13 per cent. |
| 12. \$171.50. | 10 \times 12. | 79. \$80620. |
| 13. \$1561. | 46. 2 \times 72, 3 \times 48 | 80. \$4018.50. |
| 14. The land, by | 4 \times 36, 6 \times 24 | 81. \$6400. |
| \$1703. | 8 \times 18, 9 \times 16 | 82. \$240. |
| 15. Lost \$46. | 12 \times 12 | 83. 89000 lbs. L. |
| 16. Loss, \$8.28. | 47. 81 $\frac{79}{120}$. | 8900 lbs. S. |
| 17. \$146.20. | 48. 7 lots. | 84. 37125 lbs. |
| 18. 56160 min. | 49. \$622 $\frac{2}{9}$. | 85. 146250 gals. |
| 19. 225 days. | 50. \$343 $\frac{2}{7}$. | 86. 39 $\frac{4}{9}$ per cent. |
| 20. 499 days. | 51. 50.663 in. | 87. Loss, \$80. |
| 21. I owe \$45.48 | 52. 40 rods. | 88. \$37.53. |
| 22. 2516 $\frac{1}{4}$ ft. | 53. \$150.95. | 89. \$3.34. |
| 23. 61908 cu. ft. | 54. \$52 $\frac{1}{8}$. | 90. \$4461. |
| 24. 3488 $\frac{8}{9}$ cu. y. | 55. 3 $\frac{3}{4}$ tons. | 91. \$203.10. |
| 25. \$117.53 $\frac{1}{3}$. | 56. \$907.16. | 92. \$1400. |
| 26. £12. | 57. \$7.87 $\frac{1}{2}$. | 93. \$240.75. |
| 27. \$7.12. | 58. \$4.60. | 94. \$38000. |
| 28. \$11.55. | 59. \$2.40. | 95. \$47038.32. |
| 29. \$6767.50. | 60. \$18.33. | 96. \$58.66. |
| 30. \$6756.80. | 61. 11 inches. | 97. \$515.86. |
| 31. \$243000. | 62. \$14.88. | 98. \$20.75. |
| 32. 2346 $\frac{2}{3}$ times | 63. \$88.92. | 99. \$71.03. |
| 33. \$94 $\frac{1}{32}$. | 64. \$6.02. | 100. \$1702. |

ANSWERS TO FIRST GRADE.

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|---------------------------------|--------------------------------|--|
| 1. \$391.02 | 35. \$4147.50. | 70. 290.47 ft. |
| 2. \$290.07 $\frac{1}{2}$. | 36. 2 y, 20 d. | 71. 9 75 acres. |
| 3. \$84.94. | 37. \$3525, \$2820 | 72. 235.5 yds. |
| 4. \$128.12 $\frac{1}{2}$. | \$2115. | 73. \$64.40. |
| 5. \$10.93. | 38. \$32.50. | 74. $\frac{1399}{3630}$ A. |
| 6. \$168.33. | 39. \$67.37. | 75. 3848 sq. in. |
| 7. 9 per cent. | 40. 164 $\frac{2}{3}$ sq. yds. | 76. 8.88 inches. |
| 8. 3 yrs. 3 mos. | 41. 63 days. | 77. 867.4 rods. |
| 9. \$9500. | 42. \$1039.50. | 78. 483.85 sq. r. |
| 10. \$966.20. | 43. 510 cords | 79. \$1036.80. |
| 11. \$1137.50. | 44. 67500 lbs. | 80. \$83.26 ft. |
| 12. \$16037.50. | 45. 30660 gals. | 81. $\frac{649}{2880}$. |
| 13. \$56.70. | 46. \$48.20. | 82. \$1889.40. |
| 14. \$600.17% | 47. 52 barrels. | 83. John, 228;
Henry, 192. |
| 15. \$311640. | 48. 86.454 tons. | 84. \$60.63. |
| 16. \$50000. | 49. \$84.64. | 85. 232 days. |
| 17. 42 $\frac{6}{7}$ per cent. | 50. 15156 sq. in. | 86. \$13650. |
| 18. 282 days. | 51. \$195.01. | 87. $\frac{1}{80}$ or 1 $\frac{1}{4}$ per
cent. |
| 19. \$159. | 52. \$839.40. | 88. \$689.18. |
| 20. \$1432.20. | 53. 50 34 yds. | 89. 6400 stones. |
| 21. \$565. | 54. \$218.66 $\frac{2}{3}$. | 90. \$95. |
| 22. \$67258.95 | 55. \$2282. | 91. 23.32 ft. |
| 23. \$1108. | 56. \$11.13 $\frac{1}{3}$. | 92. \$14120,
\$17650,
\$21180. |
| 24. \$733.30. | 57. $\frac{5}{24}$. | 93. 100 planks. |
| 25. Jones owes
me \$52.90. | 58. 6 $\frac{9}{16}$ yds. | 94. \$20.88. |
| 26. \$51426.50. | 59. 71 farms. | 95. \$205.80. |
| 27. \$1600.56. | 60. \$173.60. | 96. £372, 7s, 11d |
| 28. \$21463.20. | 61. 6 $\frac{27}{34}$ inches. | 97. 3.36494. |
| 29. \$525, \$600,
and \$400. | 62. 208.71 ft. | 98. 400 lots. |
| 30. \$589.50. | 63. 1560 persons | 99. 7500 lbs. |
| 31. 420 rods. | 64. 235 men. | 100. \$902.24. |
| 32. 232 lbs. | 65. 320 rods. | |
| 33. 3240. | 66. 204.93 ft. | |
| 34. \$207. | 67. 43.26 ft. | |
| | 68. \$1120. | |
| | 69. \$1.60. | |

ANSWERS TO SUPPLEMENTARY EXAMPLES.

1. 513 rods. \$2154.60.	24. $12\frac{1}{2}$ per cent	49. $60342\frac{6}{7}$ hhd.
2. 438 ft.	25. .8787 +	50. $2\frac{9}{132}$ miles.
3. 37 ft.	26. \$174.20.	51. 469156 hrs.
4. 46.64 ft.	27. \$51.25.	52. 3a. 0r. 33p.
5. 222.73 rods.	28. $8\frac{1}{3}$ per cent.	92 sq ft.
6. 35.66 ft.	29. 1 h. 5m. 48s.	53. $\frac{2}{9}\frac{0}{9}$.
7. 4 lbs. 6 oz. 18 pwt. 4 gr.	30. \$5488	54. \$114.58.
8. 7 tons, 14 cwt 83 lbs	31. \$560.	55. 21780 vines.
9. 254 m. 66 r.	32. 43200 bricks	56. 43.81 rods.
10. \$265.12 $\frac{1}{2}$.	33. 2401 tiles.	57. 22.6 in.
11. \$365.50.	34. $6\frac{1}{4}$ per cent.	58. \$3000.
12. \$392.52.	35. \$342.20.	59. 756 bricks.
13. 7 per cent.	36. 100 feet	60. $340\frac{5}{16}$ cords.
14. \$351.60.	37. $8\frac{4}{7}$ weeks.	61. 69.336.
15. 2 years.	38. $249\frac{1}{5}$ yards	62. \$3375.
16. $6\frac{1}{2}$ years.	of paper.	63. \$1123.50.
17. $12\frac{1}{2}$ years.	39. \$56.72.	64. $33\frac{1}{3}$ per cent.
18. $6\frac{1}{2}$ per cent.	40. \$254.47.	65. \$144.
19. 10561 posts.	41. $\frac{2}{3}\frac{1}{2}$ yds.	66. 160.07 ft.
20. \$5.50.	42. 62450 miles.	67. 21936 lbs.
21. \$63.96.	43. $106\frac{3}{8}$ sq ft.	68. \$7326.
22. \$60.06.	44. 38.1372 sq.ft	69. 13.2 in.
23. \$31.02	45. 314.16 sq.in.	70. 504 cub. in.
	46. \$28800.	71. Feb. 1, 1876,
	47. 520.83 yds.	\$37.75.
	48. 40 ^{minutes} _{4 p. m.} past	72. $1368\frac{3}{4}$ hours.

73. 12.648 rods.	106. \$178.87.	140. \$3.20.
74. 75x60 ft.	107. \$360&\$420	141. 140 nearly.
75. 113.12 rods.	108. 56 hours.	142. 137.3 lbs.
76. 263894.4 gal	109. $19\frac{1}{4}$ yards.	143. 2 hours, 40
77. \$89.85.	110. 20 days.	minutes.
78. 11.52 av. lbs.	111. 4 years.	144. 480 rods.
79. \$44 per mo.	112. \$1371.95.	145. .0166 in.
80. 38 in.	113. \$1293.93.	nearly.
81. 345 yds.	114. \$2066 $\frac{2}{3}$.	146. \$13750.
82. $5761\frac{19}{21}$.	115. $12\frac{1}{2}$ years.	147. 78.54 cu.
83. $3\frac{1}{2}$ ft.	116. 2 yrs, 3 mo.	ft.
84. \$1200.	117. \$953.57.	148. \$1200.
85. 212.7 nearly.	118. \$54.90 —	149. 3 yrs. 10m.
86. 22.6 in.	$33\frac{1}{3}$ per ct.	9days.
87. 154 sq. ft.	119. \$2507.04.	150. 10 days.
nearly.	120. \$176.88.	151. \$11840.
88. \$41.60.	121. 648 feet.	152. \$114.40.
89. 64000 gals.	122. \$122.85.	153. \$4041.25.
90. $68\frac{3}{5}$ acres.	123. \$8.48.	154. $166\frac{2}{3}$ yards.
91. 36 times as	124. 113.0976.	155. 200 centals.
much.	sq. ft.	156. 40 yards.
92. \$360, \$275,	125. \$4070.	157. 19 minutes,
\$240.	126. \$18000	48 s. past
93. $\frac{1606}{20523}$.	127. 64 in.	8 P. M.
94. \$909.77.	128. \$708.34.	158. \$76.14.
95. \$99.03.	129. 54 trees	159. \$50 more.
96. $73\frac{1}{2}$ lbs.	130. \$239.20	160. 3 yrs.5 mos.
97. 10.6 ft.	131. 5301.45	9 days.
98. 153140.625	gallons.	161. $23\frac{3}{4}$ acres.
tons.	132. 21 per ct.	162. 47 in.
99. \$362.76.	133. $315\frac{5}{9}$ sq.	163. \$58.65. •
100. 3174.6 fr'cs.	yards.	164. 18.4 feet,
101. \$145.50.	134. 40320 min.	nearly.
102. $7\frac{1}{12}$ miles.	135. 110 days.	165. \$304.
103. $\$25\frac{3}{8}$.	136. \$72.93.	166. 102 ft.
104. A\$48, B\$81	137. \$197.76.	167. \$315.
105. A 34 , B $45\frac{1}{3}$	138. 864 ft.	168. \$613.86.
C $56\frac{2}{3}$ yrs.	139. 9802 ft.	169. .52.

170.	$3\frac{9}{10}$ per ct. nearly.	180.	2513.28 sq. in.	189.	85 by 80 ft.
171.	$135\frac{5}{12}$ rms.	181.	$\frac{5}{7}$.	190.	264 and 72.
172.	61 ft.	182.	\$484.	191.	100 acres.
173.	8.04 ft.	183.	65, 39, 26.	192.	\$1000.
174.	$9\frac{1}{3}$ by $1\frac{1}{3}$.	184.	\$1800,	193.	$91\frac{2}{3}$ per ct.
175.	$7\frac{1}{2}$ in.		\$2700, \$3600.	194.	28.28 ft.
176.	{ Edge 30 in. Vol. 27000 cubic in.	185.	\$251.33.	195.	15.71 ft.
		186.	381.18 cu. in. nearly	196.	$24\frac{1}{6}\frac{5}{6}$ acres.
177.	1152 ft.	187.	$62\frac{1}{2}$ cents.	197.	$62\frac{3}{4}$ ft.
178.	1466.7 ft.	188.	$102\frac{8}{9}$ sq.	198.	\$7470.50.
179.	7746 cu. ft.		ft.	199.	\$223.19.
				200.	87780 bricks



ANSWERS TO BILLS, CASH ACCOUNTS, Etc.

$$\begin{array}{rcl}
 1. & 846\frac{1}{2} @ 14c. & = \$118 \ 51 \\
 & 345 \text{ " } 21\frac{1}{5}c. & = \quad 73 \ 14 \\
 & 48 \text{ " } 90c. & = \quad 43 \ 20 \\
 & 72 \text{ " } \$2 \ 40 & = \quad 172 \ 80 \\
 & 13 \text{ " } 4 \ 00 & = \quad 52 \ 00
 \end{array}$$

\$459 65

$$\begin{array}{rcl}
 2. & 6 @ \$1 \ 25 & = \$ \ 7 \ 50 \\
 & 12 \text{ " } 2 \ 25 & = \quad 27 \ 00 \\
 & 18 \text{ " } 33\frac{1}{3}c. & = \quad 6 \ 00 \\
 & 2 \text{ " } \$8 \ 75 & = \quad 17 \ 50 \\
 & 1 \text{ " } 40 \ 00 & = \quad 40 \ 00 \\
 & 2 \text{ " } 3 \ 20 & = \quad 6 \ 40
 \end{array}$$

\$104 40

$$\begin{array}{rcl}
 3. & 4.960 @ \$90 \ 00 & = \$446 \ 40 \\
 & 3.575 \text{ " } 26 \ 00 & = \quad 92 \ 95 \\
 & 2.240 \text{ " } 55 \ 00 & = \quad 123 \ 20 \\
 & 4.785 \text{ " } 28 \ 00 & = \quad 133 \ 98
 \end{array}$$

\$796 53

$$\begin{array}{rcl}
 4. & 7 @ 15c. & = \$ \ 1 \ 05 \\
 & 9 \text{ " } 88c. & = \quad 7 \ 92 \\
 & 8 \text{ " } \$4 \ 00 & = \quad 32 \ 00 \\
 & 5 \text{ " } 96c & = \quad 4 \ 80 \\
 & 3 \text{ " } \$7 \ 50 & = \quad 22 \ 50
 \end{array}$$

\$68 27

$$\begin{array}{rcl}
 5. & 8 @ \$ 6\ 25 & = \$50\ 00 \\
 & 50 \text{ " } 20\text{c.} & = 10\ 00 \\
 & 48 \text{ " } 33\frac{1}{3}\text{c.} & = 16\ 00 \\
 & 120 \text{ " } 16\frac{2}{3}\text{c.} & = 20\ 00 \\
 & 14 \text{ " } \$10\ 75 & = 150\ 50 \\
 & 30 \text{ " } 85\text{c.} & = 25\ 50 \\
 & & \hline
 & & \$272\ 00
 \end{array}$$

$$\begin{array}{rcl}
 6. & 75 @ \$ 2\ 50 & = \$187\ 50 \\
 & 42 \text{ " } 1\ 80 & = 75\ 60 \\
 & 16 \text{ " } 3\ 25 & = 52\ 00 \\
 & 18 \text{ " } 21\ 00 & = 378\ 00 \\
 & 81 \text{ " } 1\ 10 & = 89\ 10 \\
 & & \hline
 & & \$782\ 20
 \end{array}$$

$$\begin{array}{rcl}
 7. & 13 @ \$1\ 25 & = \$16\ 25 \\
 & 24 \text{ " } 75\text{c.} & = 18\ 00 \\
 & 14 \text{ " } \$1\ 10 & = 15\ 40 \\
 & 16 \text{ " } 10\text{c.} & = 1\ 60 \\
 & 44 \text{ " } 15\text{c.} & = 6\ 60 \\
 & & \hline
 & & \$57\ 85
 \end{array}$$

$$\begin{array}{rcl}
 8. & 120 @ 40\text{c.} & = \$48\ 00 \\
 & 235 \text{ " } 16\frac{1}{5}\text{c.} & = 38\ 07 \\
 & 124 \text{ " } 14\text{c.} & = 17\ 36 \\
 & 86 \text{ " } 75\frac{1}{2}\text{c.} & = 64\ 93 \\
 & 275 \text{ " } 11\text{c.} & = 30\ 25 \\
 & 120 \text{ " } 10\frac{1}{2}\text{c.} & = 12\ 60 \\
 & & \hline
 & & \$211\ 21
 \end{array}$$

$$\begin{array}{rcl}
 9. & 42 @ \$8\ 12 & = \$341\ 04 \\
 & 864 \text{ " } 33\frac{1}{3}\text{c.} & = 288\ 00 \\
 & 2400 \text{ " } 92\text{c.} & = 2208\ 00 \\
 & 3875 \text{ " } 12\text{c.} & = 465\ 00 \\
 & 1250 \text{ " } 12\frac{1}{2}\text{c.} & = 156\ 25 \\
 & & \hline
 & & \$3458\ 29
 \end{array}$$

10. $5 @ \$3\ 25 = \$16\ 25$
 $4.500\ " \ 4\ 78 = 21\ 51$
 $24\ " \ 1\ 12\frac{1}{2} = 27\ 00$
 $3\ " \ 5\ 75 = 17\ 25$

 $\$82\ 01$
11. $24 @ \$2\ 25 = \$54\ 00$
 $80\ " \ 30c. = 24\ 00$
 $4\ " \ \$6\ 75 = 27\ 00$
 $22\frac{1}{2}\ " \ 1\ 12 = 25\ 20$

 $\$130\ 20$
12. $89\frac{2}{7} @ \$91\ 00 = \$8125\ 00$
 $21\frac{3}{4}\ " \ 72\ 00 = 1566\ 00$
 $115\ " \ 24\frac{1}{5} = 2783\ 00$
 $90\ " \ 10\frac{2}{3} = 960\ 00$
 $56\ " \ 14\frac{1}{7} = 792\ 00$

 $\$14226\ 00$
13. $4820\ 00 @ \$1\ 32\frac{1}{4} = \$6374\ 45$
 $2186\ 00\ " \ 1\ 10\frac{1}{2} = 2415\ 53$
 $960\ 00\ " \ 1\ 62\frac{1}{2} = 1560\ 00$

 $\$10349.98$
 $.03$

Commissions = $\$310.4994$
14. $250 @ \$25\ 50 = \$6375\ 00$
 $366\ " \ 22\ 50 = 8235\ 00$
 $3240\ " \ 2\ 20 = 7128\ 00$
 $420\ " \ 1\ 00 = 420\ 00$
 $241\ " \ 7\ 25 = 1747\ 25$

 $\$23805\ 25$
15. $7425 @ 4\frac{1}{5}c. = \$311\ 85$
 $2606\ " \ 5\frac{1}{2}c. = 143\ 33$
 $1725\ " \ 11c. = 189\ 75$
 $926\ " \ 7\frac{1}{2}c. = 69\ 45$

 $\$714\ 38$

$$\begin{array}{rcl}
 16. & 230 @ & 4\frac{1}{2}c. = \$10 \ 35 \\
 & 115 " & 16\frac{1}{5}c. = \ 18 \ 63 \\
 & 82 " & 22c. = \ 18 \ 04 \\
 & 57 " & 12\frac{1}{3}c. = \ 7 \ 03 \\
 & 25 " & 59c. = \ 14 \ 75 \\
 & 75 " & 15c. = \ 11 \ 25 \\
 & & \hline
 & & \$80 \ 05
 \end{array}$$

$$\begin{array}{rcl}
 17. & 52 @ & \$4 \ 50 = \$234 \ 00 \\
 & 27 " & 5 \ 25 = \ 141 \ 75 \\
 & 36 " & 6 \ 00 = \ 216 \ 00 \\
 & 40 " & 13 \ 25 = \ 530 \ 00 \\
 & 25 " & 14 \ 00 = \ 350 \ 00 \\
 & 29 " & 3 \ 25 = \ 94 \ 25 \\
 & & \hline
 & & \$1566 \ 00
 \end{array}$$

$$\begin{array}{rcl}
 18. & 97 @ & \$6 \ 25 = \$606 \ 25 \\
 & 167 " & 5 \ 95 = \ 993 \ 65 \\
 & 87 " & 6 \ 07 = \ 528 \ 09 \\
 & 196 " & 5 \ 75 = 1127 \ 00 \\
 & 69 " & 1 \ 16 = \ 80 \ 04 \\
 & 136 " & 67c. = \ 91 \ 12 \\
 & & \hline
 & & \$3426 \ 15
 \end{array}$$

$$\begin{array}{rcl}
 19. & 49 @ & \$3 \ 50 = \$171 \ 50 \\
 & 39 " & 1 \ 65 = \ 64 \ 35 \\
 & 197 " & 39c. = \ 76 \ 83 \\
 & 86 " & 48c. = \ 41 \ 28 \\
 & 78 " & \$1 \ 25 = \ 97 \ 50 \\
 & 91 " & 9 \ 55 = \ 869 \ 05 \\
 & 83 " & 16 \ 60 = 1377 \ 80 \\
 & & \hline
 & & \$2698 \ 31
 \end{array}$$

$$\begin{array}{rcl}
 20 & 37 \times 49 @ & 52c. = \$942 \ 76 \\
 & 41 \times 36 " & 39c. = \ 575 \ 64 \\
 & 40 \times 40 " & 40c. = \ 640 \ 00 \\
 & 13 " & \$125 = 1625 \ 00 \\
 & & \hline
 & & \$3783 \ 40
 \end{array}$$

$$\begin{array}{rcl}
 21. & 7\frac{3}{4} @ \$2\ 40 & = \$18\ 60 \\
 & 29\frac{3}{4} " \ 16c. & = \ 4\ 76 \\
 & 18\frac{1}{4} " \ 32c. & = \ 5\ 84 \\
 & 30\frac{1}{3} " \ 15c. & = \ 4\ 55 \\
 & \ 3 " \ 17c. & = \ \ 51 \\
 & 7\frac{1}{2} " \ 18c. & = \ 1\ 35 \\
 & & \hline
 & & \$35\ 61
 \end{array}$$

$$\begin{array}{rcl}
 22. & 27 @ \ 19c. & = \$5\ 13 \\
 & 25 " \ 27c. & = \ 6\ 75 \\
 & 17 " \ 75c. & = 12\ 75 \\
 & \ 9 " \$3\ 75 & = 33\ 75 \\
 & \ 8 " \ 5\ 50 & = 44\ 00 \\
 & 27 " \ 2\ 25 & = 60\ 75 \\
 & 18 " \ 9\ 85 & = 177\ 30 \\
 & 75 " \ 1\ 20 & = 90\ 00 \\
 & 67 " \ 1\ 25 & = 83\ 75 \\
 & & \hline
 & & \$514\ 18
 \end{array}$$

$$\begin{array}{rcl}
 23. & 789 @ \ 17c. & = \$134\ 13 \\
 & 524 " \ 22\frac{1}{2}c. & = 117\ 90 \\
 & 361 " \ 15c. & = \ 54\ 15 \\
 & \ 49 " \ 31c. & = \ 15\ 19 \\
 & 368 " \ 23c. & = \ 84\ 64 \\
 & 266 " \ 29\frac{1}{2}c. & = \ 78\ 47 \\
 & & \hline
 & & \$484\ 48
 \end{array}$$

$$\begin{array}{rcl}
 24. & 3 \times 63 @ \$1\ 48 & = \$279\ 72 \\
 & 5 \times 56 " \ 1\ 26 & = 352\ 80 \\
 & 9 \times 56 " \ 1\ 19\frac{1}{2} & = 602\ 28 \\
 & 8 \times 32 " \ 98c. & = 250\ 88 \\
 & 16 \times 35 " \ 97c. & = 543\ 20 \\
 & & \hline
 & & \$2028\ 88
 \end{array}$$

$$\begin{array}{rcl}
 25. & 19 @ \$5\ 75 & = \$109\ 25 \\
 & 27 " \ 9\ 85 & = 265\ 95 \\
 & 36 " \ 2\ 50 & = 90\ 00 \\
 & 7\frac{1}{2} " \ 4\ 28 & = 32\ 10 \\
 & 10 " \ 2\ 25 & = 22\ 50 \\
 & & \hline
 & & \$519\ 80
 \end{array}$$

26. $96.000 @ \$11\ 65 = \$1118\ 40$
 $48.650 \text{ " } 9\ 50 = 462\ 17$
 $16.300 \text{ " } 14\ 00 = 228\ 20$
 $11.250 \text{ " } 15\ 00 = 168\ 75$
 $7.620 \text{ " } 18\ 00 = 137\ 16$
 $29.600 \text{ " } 16\ 00 = 473\ 60$

 $\$2588\ 28$
27. $25 \times 144 @ 27c. = \$972\ 00$
 $35 \times 12 \text{ " } 82c. = 344\ 40$
 $42 \times 12 \text{ " } 18\frac{1}{2}c. = 93\ 24$
 $35 \text{ " } \$3\ 25 = 113\ 75$
 $25 \text{ " } 5\ 88 = 147\ 00$
 $8 \text{ " } 3\ 65 = 29\ 20$

 $\$1699\ 59$
28. $\$2694\ 89$
 $1590\ 57$

 $\$1104\ 32$
29. $\$78\ 15$
 $57\ 65$

 $\$20\ 50$
30. $1728\frac{1}{6} @ 18c. = \$311\ 07$
 $588 \text{ " } 24\frac{3}{4}c. = 145\ 53$
 $747 \text{ " } 7\frac{5}{9}c. = 56\ 44$
 $17 \text{ " } \$3\ 75 = 63\ 75$
 $9 \text{ " } 37\ 75 = 339\ 75$

 $\$916\ 54$
31. $127\frac{1}{2} @ 40c. = \$51\ 00$
 $215\frac{3}{4} \text{ " } 52c. = 112\ 19$
 $189 \text{ " } 66c. = 124\ 74$
 $204\frac{1}{8} \text{ " } 72c. = 146\ 97$
 $95 \text{ " } \$1\ 10 = 104\ 50$

 $\$539\ 40$

$$\begin{array}{rcl}
 32 & 3256 @ 2\frac{1}{4}c. & = \$73 \ 26 \\
 & 1662 \text{ " } 2c. & = 33 \ 24 \\
 & 2589 \text{ " } 3\frac{1}{3}c. & = 86 \ 30 \\
 & 995 \text{ " } 4\frac{1}{5}c. & = 41 \ 79 \\
 & 880 \text{ " } 1\frac{3}{4}c. & = 15 \ 40 \\
 & & \hline
 & & \$249 \ 99
 \end{array}$$

$$\begin{array}{rcl}
 33 & 80\frac{1}{4} @ 16c. & = \$12 \ 84 \\
 & 73 \text{ " } 15c. & = 10 \ 95 \\
 & 62\frac{1}{2} \text{ " } \$4 \ 40 & = 275 \ 00 \\
 & 29 \text{ " } 1 \ 44 & = 41 \ 76 \\
 & 38\frac{3}{4} \text{ " } 76c. & = 29 \ 45 \\
 & & \hline
 & & \$370 \ 00
 \end{array}$$

$$\begin{array}{rcl}
 34. & 4 @ 45c. & = \$1 \ 80 \\
 & 3\frac{1}{2} \text{ " } \$1 \ 50 & = 5 \ 25 \\
 & 15 \text{ " } 16\frac{1}{5}c. & = 2 \ 43 \\
 & 24 \text{ " } 18c. & = 4 \ 32 \\
 & 4 \text{ " } 12\frac{1}{2}c. & = 50 \\
 & 7 \text{ " } 22c. & = 1 \ 54 \\
 & 3 \text{ " } 50c. & = 1 \ 50 \\
 & & \hline
 & & \$17 \ 34
 \end{array}$$

$$\begin{array}{rcl}
 35. & 86\frac{1}{4} @ 24c. & = \$20 \ 70 \\
 & 17\frac{1}{2} \text{ " } 62c. & = 10 \ 85 \\
 & \frac{3}{4} \text{ " } \$6 \ 28 & = 4 \ 71 \\
 & 3 \text{ " } 48c. & = 1 \ 44 \\
 & 5 \text{ " } \$2 \ 85 & = 14 \ 25 \\
 & 14 \text{ " } 75c. & = 10 \ 50 \\
 & 29 \text{ " } 17c. & = 4 \ 93 \\
 & & \hline
 & & \$67 \ 38
 \end{array}$$

$$\begin{array}{rcl}
 36. & 895 @ 3\frac{3}{5}c. & = \$32 \ 22 \\
 & 14\frac{1}{2} \text{ " } 18c. & = 2 \ 61 \\
 & 56 \text{ " } \$7 \ 50 & = 420 \ 00 \\
 & 498 \text{ " } 23\frac{1}{2}c. & = 117 \ 03 \\
 & 764 \text{ " } 18c. & = 137 \ 52 \\
 & 15 \text{ " } \$4 \ 75 & = 71 \ 25 \\
 & 7 \text{ " } 36 \ 00 & = 252 \ 00 \\
 & 5 \text{ " } 49 \ 50 & = 247 \ 50 \\
 & & \hline
 & & \$1280 \ 13
 \end{array}$$

25 @	37c.	=	\$9 25
650 "	6c.	=	39 00
256 "	18c.	=	46 08
650 "	16½c.	=	107 25
86 "	38c.	=	32 68
35 "	58c.	=	20 30
325 "	⅔c.	=	2 60

\$257 16

\$1280 13

257 16

Ans.—\$1022 97

37. SAN FRANCISCO, Dec. 23d, 1881.
Ship "WANDERING JEW,"

Bought of HANLEY & SNOW.

2572 lbs.	Hard Bread, @	5½c....	\$141 46
1876 "	Pork, "	15¼c....	286 09
2960 "	Beef, "	14½c....	429 20
226 "	Brown Sugar, "	9½c....	21 47
20 gals.	Molasses, "	36½c....	7 30
429 lbs.	Beans, "	15c....	64 35
275 "	Peas, "	17⅓c....	47 30
4 doz.	B. Lime Juice, "	\$2 50	10 00
27 lbs.	Raisins, "	26⅓c....	7 11
10 gals.	Vinegar, "	45c....	4 50
25 lbs.	Salt, "	3c....	75

Received Payment, \$1019 53

HANLEY & SNOW.

38.

67 @	40c	=	\$26 80
49 "	75c	=	36 75
27 "	\$1 50	=	40 50
15 "	2 12	=	31 80
58 "	1 87	=	108 46

\$244 31

89 00

Ans.—\$155 31

39.	1864 @ $17\frac{1}{4}$ c.	=	\$321 54
	2962 " $18\frac{1}{2}$ c.	=	547 97
	475 " $26\frac{4}{5}$ c.	=	127 30
	218 " $34\frac{1}{2}$ c.	=	75 21
	96 " \$2 75	=	264 00
			<u>\$1336 02</u>

40.	DEBITS.	CREDITS.
	\$115 00	\$34 65
	63 05	5 58
	81 00	10 35
	59 00	2 32
	134 75	207 00
	10 80	12 00
	<u>\$463 60</u>	<u>\$271 90</u>
	271 90	

\$191 70 = the balance Bray owes me.

41.	24 @ \$3 28	=	\$78 72
	16 " 4 65	=	74 40
	18 " 2 75	=	49 50
	14 " 5 25	=	73 50
	1 " 46 00	=	46 00
	9 " 6 82	=	61 38
			<u>\$383 50</u>

42.	25 @ \$9 25	=	\$231 25
	15 " 7 50	=	112 50
	20 " 8 40	=	168 00
	27 " 12 50	=	337 50
	115 " 65c.	=	74 75
			<u>\$924 00</u>

43.	8462 @ $23\frac{1}{2}$ c.	=	\$1988 57
	4800 " 25c.	=	1200 00
	2750 " 27c.	=	742 50
	1480 " $32\frac{1}{4}$ c.	=	477 30
	1500 " 19c.	=	285 00
	2696 " $28\frac{1}{2}$ c.	=	768 36
			<u>\$5461 73</u>

$$\begin{array}{rcl}
44. & 265 @ & 6c. = \$15\ 90 \\
& 48 \text{ " } & 23c. = 11\ 04 \\
& 126 \text{ " } & 15\frac{1}{2}c. = 19\ 53 \\
& 44 \text{ " } & 1\frac{1}{2}c. = 5\ 72 \\
& 8 \text{ " } & \$2\ 00 = 16\ 00 \\
& 15 \text{ " } & 33c. = 4\ 95 \\
& 10 \text{ " } & 67c. = 6\ 70 \\
& 5 \text{ " } & \$1\ 10 = 5\ 50 \\
& & \hline
& & \$85\ 34
\end{array}$$

$$\begin{array}{rcl}
45. & 29 @ & 46c. = \$13\ 34 \\
& 45 \text{ " } & 12c. = 5\ 40 \\
& 146 \text{ " } & 16\frac{1}{2}c. = 24\ 09 \\
& 73 \text{ " } & \$1\ 96 = 143\ 08 \\
& 56 \text{ " } & 2\ 75 = 154\ 00 \\
& 49 \text{ " } & 2\ 20 = 107\ 80 \\
& 38 \text{ " } & 1\ 75 = 66\ 50 \\
& & \hline
& & \$514\ 21
\end{array}$$

$$\begin{array}{rcl}
46. & 216 @ & \$2\ 25 = \$486\ 00 \\
& 160 \text{ " } & 1\ 12\frac{1}{2} = 180\ 00 \\
& 75 \text{ " } & 1\ 25 = 93\ 75 \\
& 110 \text{ " } & 1\ 37\frac{1}{2} = 151\ 25 \\
& 6 \text{ " } & 75\ 50 = 453\ 00 \\
& 648 \text{ " } & 14\frac{1}{2}c. = 93\ 96 \\
& 72 \text{ " } & 87\frac{1}{2}c. = 63\ 00 \\
& & \hline
& & \$1520\ 96
\end{array}$$

$$\begin{array}{rcl}
47. & 3936 @ & 18\frac{1}{4}c. = \$718\ 32 \\
& 3060 \text{ " } & 21\frac{1}{2}c. = 657\ 90 \\
& 252 \text{ " } & 60c. = 151\ 20 \\
& & \hline
& & \$1527\ 42
\end{array}$$

$$\begin{array}{rcl}
48. & 7 @ & \$3\ 75 = \$26\ 25 \\
& 15 \text{ " } & 3\ 80 = 57\ 00 \\
& 7\frac{1}{2} \text{ " } & 3\ 90 = 29\ 25 \\
& 28 \text{ " } & 1\ 05 = 29\ 40 \\
& 8 \text{ " } & 2\ 50 = 20\ 00 \\
& 13 \text{ " } & 4\ 25 = 55\ 25 \\
& & \hline
& & \$217\ 15
\end{array}$$

49.	1926 @	$9\frac{1}{2}$ c. =	\$182 97
	2460 "	$5\frac{1}{4}$ c. =	129 15
	2372 "	13c. =	308 36
	480 "	$14\frac{1}{2}$ c. =	69 60
			<hr/>
			\$690 08

50.

CASH.

DR.	CR.
\$62 40	\$14 25
5 50	9 62
2 98	13 41
1 57	12 00
3 35	1 88
4 42	1 60
1 15	80
9 95	65
10 00	25
3 30	14 25
7 75	Bal.—59 31
25	
85	
90	
13 65	
<hr/>	<hr/>
\$128 02	\$128 02

51.

450 @	$12\frac{1}{2}$ c. =	\$56 25
240 "	$11\frac{3}{4}$ c. =	28 20
320 "	$10\frac{1}{2}$ c. =	33 60
220 "	$22\frac{1}{2}$ c. =	49 50
30 "	\$3 75 =	112 50
16 "	$3\ 37\frac{1}{2}$ =	54 00
15 "	4 12 =	61 80
		<hr/>
		\$395 85

52.

4824 @	$28\frac{1}{2}$ c. =	\$1366 80
5968 "	32c. =	1909 76
8664 "	$27\frac{1}{2}$ c. =	2382 60
11362 "	27c. =	3067 74
58652 "	$19\frac{1}{2}$ c. =	11437 14
		<hr/>
		\$20164 04

53.	DR.	CASH.	CR.
	\$286 94		\$98 75
	378 29		257 50
	496 50		88 80
	277 62		187 20
	398 45		<hr/>
			\$632 25
	<hr/>		
	\$1837 80		
	632 25		
	<hr/>		
	\$1205 55		

54.	210 @ \$1 65 =	\$346 50
	340 " 68c. =	231 20
	256 " 57c. =	145 92
	159 " 65c. =	103 35
	8 " \$7 20 =	57 60
		<hr/>
		\$384 57

55.	56 @ 23c. =	\$12 88
	126 " 4½c. =	5 67
	30 " 9½c. =	2 85
	25 " 16c. =	4 00
	3 " 40c. =	1 20
	4 " 53c. =	2 12

\$28 72

Cash, 75 00

\$103 72

47 @ \$2 25 = \$105 75

103 72

Due me, \$2 03

56.	120 @ \$2 30 =	\$276 00
	72 " 1 70 =	122 40
	70 " 1 00 =	70 00
	85 " 90c. =	76 50
	23 " 75c. =	17 25

\$562 15

6

\$3372 90

57.	DR.	CASH.	CR.
	\$472 65		\$250 00
	86 95		118 00
	92 00		37 35
	41 56		1 90
	11 20		82 00
	88 98		93 90
	16 25		27 20
	5 21		11 65
	55 85	Bal.	582 35
	96 37		
	15 00		
	72 68		
	58 20		
	19 10		
	70 00		
	2 35		
	<hr/>		<hr/>
	\$1204 35		\$1204 35
58.	1688½ M. @ \$24 00 =	\$40 52.	
59.	17.418 M. @ \$18 00 =	\$313 52	
	196 lbs. @ 6½c. =	12 74	
		<hr/>	\$326 26
60.	70.122 M. @ \$21¼ =	\$1490 09.	
61.	928.65 C @ \$2 15 =	\$1996 60	
	842.90 C " 1 88 =	1584 65	
	416.20 C " 1 96 =	815 75	
	82.65 C " 1 45 =	119 84	
		<hr/>	\$4516 84
62.	87½ @ \$1 16 =	\$101 50	
	84 " 98c. =	82 32	
	46 " 85½c. =	39 33	
	17½ " \$1 10 =	19 25	
	37½ " 28c. =	10 50	
		<hr/>	\$252 90

63. $1.016 \text{ M @ } \$19\frac{1}{2} = \19 81.

64.
$$\begin{array}{rcl} 250 @ 37\frac{1}{2}\text{c.} & = & \$93 \text{ 75} \\ 185 \text{ " } 42\text{c.} & = & 77 \text{ 70} \\ 366 \text{ " } 29\frac{1}{2}\text{c.} & = & 107 \text{ 97} \\ 75 \text{ " } \$1 \text{ 68} & = & 126 \text{ 00} \\ \hline & & \$405 \text{ 42} \end{array}$$

65.
$$\begin{array}{rcl} 3260 @ 5\text{c.} & = & \$163 \text{ 00} \\ 529 \text{ " } 6\text{c.} & = & 31 \text{ 74} \\ 462 \text{ " } 7\frac{1}{2}\text{c.} & = & 34 \text{ 65} \\ 195 \text{ " } 8\text{c.} & = & 15 \text{ 60} \\ \hline & & \$244 \text{ 99} \end{array}$$

66.
$$\begin{array}{rcl} 156.85 @ \$2 \text{ 37} & = & \$371 \text{ 73} \\ 1266 \text{ " } 2\frac{1}{2}\text{c.} & = & 31 \text{ 65} \\ 2529 \text{ " } 32\text{c.} & = & 809 \text{ 28} \\ \hline & & \$1212 \text{ 66} \end{array}$$

$$\begin{array}{rcl} 345 @ 19\text{c.} & = & \$65 \text{ 55} \\ 80 \text{ " } 18\frac{1}{2}\text{c.} & = & 14 \text{ 80} \\ 500 \text{ " } 5\frac{1}{2}\text{c.} & = & 27 \text{ 50} \\ \hline & & \$107 \text{ 85} \end{array}$$

$1212 \text{ 66} - \$107 \text{ 85} = \1104 81

67.
$$\begin{array}{rcl} 2648 \\ \hline @ \quad \$7 \text{ 60} & = & \$10 \text{ 06} \\ 2000 \\ 2390 \\ \hline @ \quad 8 \text{ 25} & = & 9 \text{ 85} \\ 2000 \\ 4828 \\ \hline @ \quad 9 \text{ 00} & = & 21 \text{ 72} \\ 2000 \\ 6290 & & 33 \text{ 02} \\ \hline @ \quad 10 \text{ 50} & = & \hline 2000 & & \$74 \text{ 65} \end{array}$$

68. 187 cattle.

69. 780 @ 15c. = \$117 00

49 " 95c. = 46 55

537 " 8c. = 18 96

15 " 18c. = 2 70

\$185 21

15 80

\$169 41

\$2 75

10 50

2 55

\$15 80

70. \$9297 50.

71. 496 @ 8c. = \$39 68

924 " $7\frac{1}{2}$ c. = 69 30

328 " $9\frac{1}{2}$ c. = 31 16

210 " 11c. = 23 10

\$163 24

72. 23.487 M. @ \$14 50 = \$340 56

18.888 M. " 34 00 = 642 19

\$982 75

73. \$1 65.

74. \$939 87.

75. 7 @ \$11 25 = \$78 75

15 " 88c. = 13 20

2 " \$4 25 = 8 50

\$100 45

2 55

\$103 00

76. \$31603.

77. \$99 75 in debt.

78. \$6752 50.

79. \$1266 90.

80. \$2348 30.

81. \$ 143 25.

82. \$2998 05.

83. Credit balance, \$205 75.

84. \$95 05.

85. Credit balance, \$407 77.

86. \$8000.

87.	8 @ \$1 25 =	\$10 00
	18 " 27c. =	4 86
	29 " 17c. =	4 93
	13 " 35c. =	4 55
	4 " 65c. =	2 60
		<hr/>
		\$26 94

88. \$4488.

89.	7 × 46½ @	16c. =	\$52 08
	42 × 32 " 12½c. =	168 00	
	50 " \$2 29 =	114 50	
	32 " 40c. =	12 80	
		<hr/>	
		\$347 38	

90.	27.350 @ \$7 50 =	\$205 12
	12.600 " 8 20 =	103 32
	75.250 " 11 75 =	884 19
		<hr/>
		\$1192 63

91. 62½c.

92. \$400.

93. \$1087 50.

94. \$ 31 25.

95. \$4641 50.

96. 2.469 M. @ \$7 00 = \$17 28

4.520 M. " 9 50 = 42 94

.620 M. " 12 75 = 7 90

.957 M. " 15 00 = 14 35

25.7 C. " 75c. = 19 27

63 M. " \$4 25 = 267 75

 \$369 49

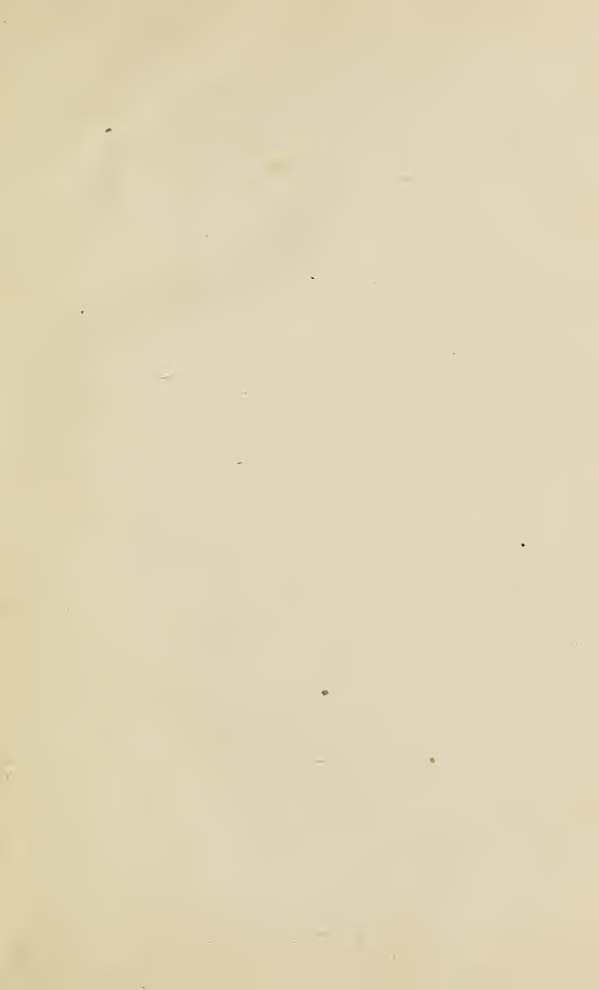
97. \$2491.

98. \$633 60.

99. \$ 53 01.

100. \$ 46 50.







QA 103 S87 1887

STONE DUDLEY C

THE ESSENTIALS OF ARITHMETIC

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Stone, Dudley C.

The essentials of arithmetic :

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